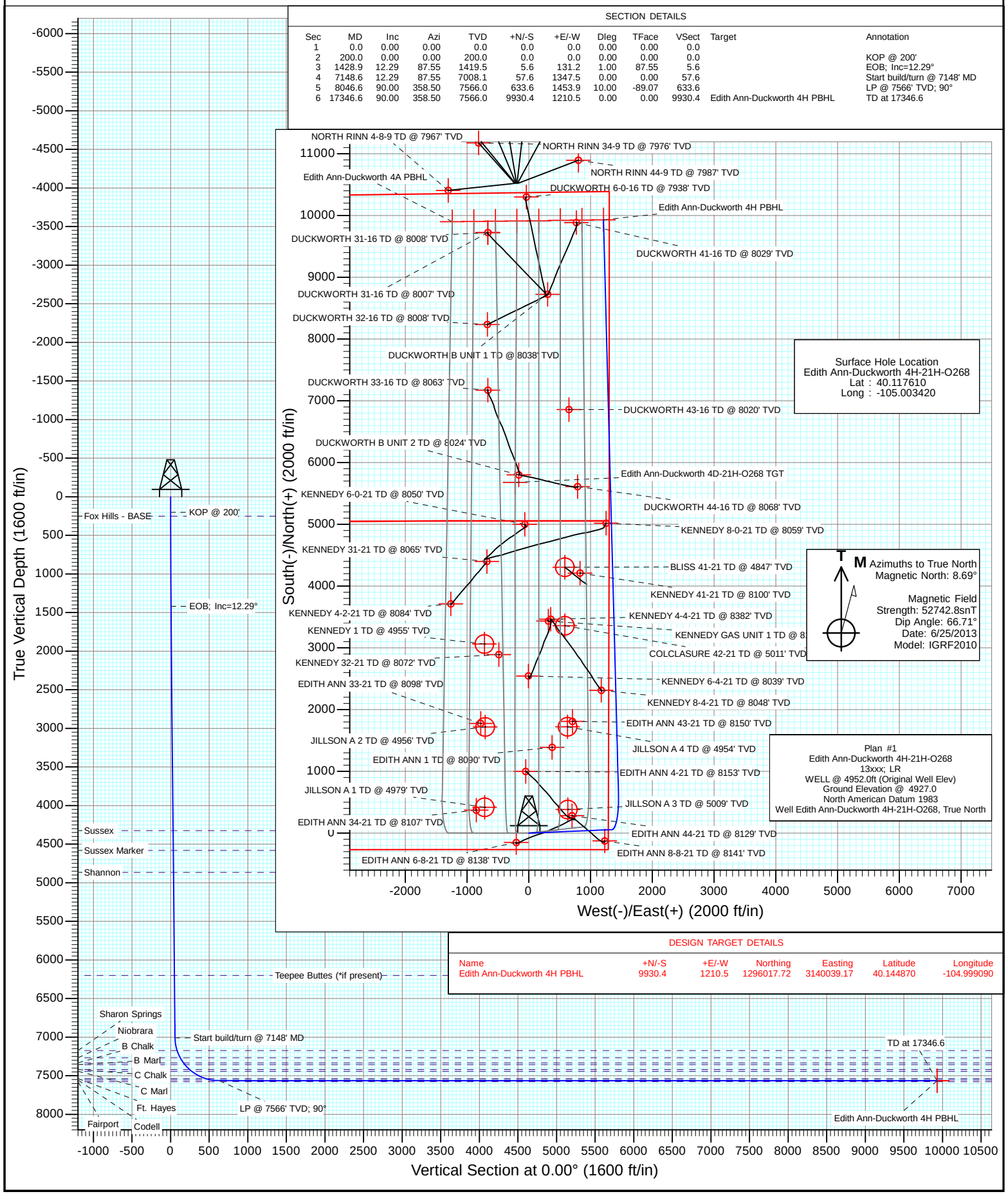
encana

Project: DJ Wattenberg
Site: S21-T2N-R68W (Edith Ann-Duckworth)
Well: Edith Ann-Duckworth 4H-21H-O268
Vellbore: Hz
Design: Plan #1

CATHEDRAL

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target	Annotation
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0		
2	200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.0		KOP @ 200'
3	1428.9	12.29	87.55	1419.5	5.6	131.2	1.00	87.55	5.6		EOB; Inc=12.29°
4	7148.6	12.29	87.55	7008.1	57.6	1347.5	0.00	0.00	57.6		Start build/turn @ 7148' MD
5	8046.6	90.00	358.50	7566.0	633.6	1453.9	10.00	-89.07	633.6		LP @ 7566' TVD; 90°
6	17346.6	90.00	358.50	7566.0	9930.4	1210.5	0.00	0.00	9930.4	Edith Ann-Duckworth 4H PBHL	TD at 17346.6



DESIGN TARGET DETAILS

Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Edith Ann-Duckworth 4H PBHL	9930.4	1210.5	1296017.72	3140039.17	40.144870	-104.999090

Planning Report

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Edith Ann-Duckworth 4H-21H-O268
Company:	EnCana Oil & Gas (USA) Inc	**TVD Reference:**	WELL @ 4952.0ft (Original Well Elev)
Project:	DJ Wattenberg	**MD Reference:**	WELL @ 4952.0ft (Original Well Elev)
Site:	S21-T2N-R68W (Edith Ann-Duckworth)	**North Reference:**	True
Well:	Edith Ann-Duckworth 4H-21H-O268	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

Project DJ Wattenberg

Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site S21-T2N-R68W (Edith Ann-Duckworth)

Site Position:		**Northing:**	1,290,455.50 ft	**Latitude:**	40.129630
From:	Lat/Long	**Easting:**	3,138,171.93 ft	**Longitude:**	-105.005880
Position Uncertainty:	0.0 ft	**Slot Radius:**	13.200 in	**Grid Convergence:**	0.32 °

Well Edith Ann-Duckworth 4H-21H-O268

Well Position	**+N/-S**	0.0 ft	**Northing:**	1,286,080.72 ft	**Latitude:**	40.117610
	+E/-W	0.0 ft	**Easting:**	3,138,884.30 ft	**Longitude:**	-105.003420
Position Uncertainty		0.0 ft	**Wellhead Elevation:**	ft	**Ground Level:**	4,927.0 ft

Wellbore Hz

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	6/25/2013	8.69	66.71	52,743

Design Plan #1

Audit Notes:

Version:		**Phase:**	PLAN	**Tie On Depth:**	0.0

Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	0.00

Plan Sections

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,428.9	12.29	87.55	1,419.5	5.6	131.2	1.00	1.00	0.00	87.55	
7,148.6	12.29	87.55	7,008.1	57.6	1,347.5	0.00	0.00	0.00	0.00	
8,046.6	90.00	358.50	7,566.0	633.6	1,453.9	10.00	8.65	-9.92	-89.07	
17,346.6	90.00	358.50	7,566.0	9,930.4	1,210.5	0.00	0.00	0.00	0.00	Edith Ann-Duckworth

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Project:	DJ Wattenberg	**MD Reference:**	WELL @ 4952.0ft (Original Well Elev)
Site:	S21-T2N-R68W (Edith Ann-Duckworth)	**North Reference:**	True
Well:	Edith Ann-Duckworth 4H-21H-O268	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	KOP @ 200'
252.0	0.52	87.55	252.0	0.0	0.2	0.0	1.00	1.00	Fox Hills - BASE
300.0	1.00	87.55	300.0	0.0	0.9	0.0	1.00	1.00	
400.0	2.00	87.55	400.0	0.1	3.5	0.1	1.00	1.00	
500.0	3.00	87.55	499.9	0.3	7.8	0.3	1.00	1.00	
600.0	4.00	87.55	599.7	0.6	13.9	0.6	1.00	1.00	
700.0	5.00	87.55	699.4	0.9	21.8	0.9	1.00	1.00	
800.0	6.00	87.55	798.9	1.3	31.4	1.3	1.00	1.00	
900.0	7.00	87.55	898.3	1.8	42.7	1.8	1.00	1.00	
1,000.0	8.00	87.55	997.4	2.4	55.7	2.4	1.00	1.00	
1,100.0	9.00	87.55	1,096.3	3.0	70.5	3.0	1.00	1.00	
1,200.0	10.00	87.55	1,194.9	3.7	87.0	3.7	1.00	1.00	
1,300.0	11.00	87.55	1,293.3	4.5	105.2	4.5	1.00	1.00	
1,400.0	12.00	87.55	1,391.2	5.3	125.1	5.3	1.00	1.00	
1,428.9	12.29	87.55	1,419.5	5.6	131.2	5.6	1.00	1.00	EOB; Inc=12.29°
1,500.0	12.29	87.55	1,489.0	6.3	146.3	6.3	0.00	0.00	
1,600.0	12.29	87.55	1,586.7	7.2	167.5	7.2	0.00	0.00	
1,700.0	12.29	87.55	1,684.4	8.1	188.8	8.1	0.00	0.00	
1,800.0	12.29	87.55	1,782.1	9.0	210.1	9.0	0.00	0.00	
1,900.0	12.29	87.55	1,879.8	9.9	231.3	9.9	0.00	0.00	
2,000.0	12.29	87.55	1,977.5	10.8	252.6	10.8	0.00	0.00	
2,100.0	12.29	87.55	2,075.2	11.7	273.9	11.7	0.00	0.00	
2,200.0	12.29	87.55	2,172.9	12.6	295.1	12.6	0.00	0.00	
2,300.0	12.29	87.55	2,270.6	13.5	316.4	13.5	0.00	0.00	
2,400.0	12.29	87.55	2,368.3	14.4	337.7	14.4	0.00	0.00	
2,500.0	12.29	87.55	2,466.1	15.3	358.9	15.3	0.00	0.00	
2,600.0	12.29	87.55	2,563.8	16.3	380.2	16.3	0.00	0.00	
2,700.0	12.29	87.55	2,661.5	17.2	401.5	17.2	0.00	0.00	
2,800.0	12.29	87.55	2,759.2	18.1	422.7	18.1	0.00	0.00	
2,900.0	12.29	87.55	2,856.9	19.0	444.0	19.0	0.00	0.00	
3,000.0	12.29	87.55	2,954.6	19.9	465.3	19.9	0.00	0.00	
3,100.0	12.29	87.55	3,052.3	20.8	486.5	20.8	0.00	0.00	
3,200.0	12.29	87.55	3,150.0	21.7	507.8	21.7	0.00	0.00	
3,300.0	12.29	87.55	3,247.7	22.6	529.1	22.6	0.00	0.00	
3,400.0	12.29	87.55	3,345.4	23.5	550.3	23.5	0.00	0.00	
3,500.0	12.29	87.55	3,443.1	24.4	571.6	24.4	0.00	0.00	
3,600.0	12.29	87.55	3,540.9	25.4	592.9	25.4	0.00	0.00	
3,700.0	12.29	87.55	3,638.6	26.3	614.1	26.3	0.00	0.00	
3,800.0	12.29	87.55	3,736.3	27.2	635.4	27.2	0.00	0.00	
3,900.0	12.29	87.55	3,834.0	28.1	656.6	28.1	0.00	0.00	
4,000.0	12.29	87.55	3,931.7	29.0	677.9	29.0	0.00	0.00	
4,100.0	12.29	87.55	4,029.4	29.9	699.2	29.9	0.00	0.00	
4,200.0	12.29	87.55	4,127.1	30.8	720.4	30.8	0.00	0.00	
4,300.0	12.29	87.55	4,224.8	31.7	741.7	31.7	0.00	0.00	
4,400.0	12.29	87.55	4,322.5	32.6	763.0	32.6	0.00	0.00	
4,402.5	12.29	87.55	4,325.0	32.7	763.5	32.7	0.00	0.00	Sussex
4,500.0	12.29	87.55	4,420.2	33.5	784.2	33.5	0.00	0.00	
4,600.0	12.29	87.55	4,517.9	34.4	805.5	34.4	0.00	0.00	
4,665.6	12.29	87.55	4,582.0	35.0	819.4	35.0	0.00	0.00	Sussex Marker
4,700.0	12.29	87.55	4,615.6	35.4	826.8	35.4	0.00	0.00	

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Well:	Edith Ann-Duckworth 4H-21H-O268	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
4,800.0	12.29	87.55	4,713.4	36.3	848.0	36.3	0.00	0.00	
4,900.0	12.29	87.55	4,811.1	37.2	869.3	37.2	0.00	0.00	
4,957.3	12.29	87.55	4,867.0	37.7	881.5	37.7	0.00	0.00	Shannon
5,000.0	12.29	87.55	4,908.8	38.1	890.6	38.1	0.00	0.00	
5,100.0	12.29	87.55	5,006.5	39.0	911.8	39.0	0.00	0.00	
5,200.0	12.29	87.55	5,104.2	39.9	933.1	39.9	0.00	0.00	
5,300.0	12.29	87.55	5,201.9	40.8	954.4	40.8	0.00	0.00	
5,400.0	12.29	87.55	5,299.6	41.7	975.6	41.7	0.00	0.00	
5,500.0	12.29	87.55	5,397.3	42.6	996.9	42.6	0.00	0.00	
5,600.0	12.29	87.55	5,495.0	43.5	1,018.2	43.5	0.00	0.00	
5,700.0	12.29	87.55	5,592.7	44.4	1,039.4	44.4	0.00	0.00	
5,800.0	12.29	87.55	5,690.4	45.4	1,060.7	45.4	0.00	0.00	
5,900.0	12.29	87.55	5,788.1	46.3	1,082.0	46.3	0.00	0.00	
6,000.0	12.29	87.55	5,885.9	47.2	1,103.2	47.2	0.00	0.00	
6,100.0	12.29	87.55	5,983.6	48.1	1,124.5	48.1	0.00	0.00	
6,200.0	12.29	87.55	6,081.3	49.0	1,145.7	49.0	0.00	0.00	
6,300.0	12.29	87.55	6,179.0	49.9	1,167.0	49.9	0.00	0.00	
6,321.5	12.29	87.55	6,200.0	50.1	1,171.6	50.1	0.00	0.00	Teepee Buttes (*if present)
6,400.0	12.29	87.55	6,276.7	50.8	1,188.3	50.8	0.00	0.00	
6,500.0	12.29	87.55	6,374.4	51.7	1,209.5	51.7	0.00	0.00	
6,600.0	12.29	87.55	6,472.1	52.6	1,230.8	52.6	0.00	0.00	
6,700.0	12.29	87.55	6,569.8	53.5	1,252.1	53.5	0.00	0.00	
6,800.0	12.29	87.55	6,667.5	54.5	1,273.3	54.5	0.00	0.00	
6,900.0	12.29	87.55	6,765.2	55.4	1,294.6	55.4	0.00	0.00	
7,000.0	12.29	87.55	6,862.9	56.3	1,315.9	56.3	0.00	0.00	
7,100.0	12.29	87.55	6,960.7	57.2	1,337.1	57.2	0.00	0.00	
7,148.6	12.29	87.55	7,008.1	57.6	1,347.5	57.6	0.00	0.00	Start build/turn @ 7148' MD
7,200.0	13.38	64.78	7,058.3	60.4	1,358.3	60.4	10.00	2.13	
7,300.0	19.56	36.30	7,154.3	78.9	1,378.8	78.9	10.00	6.18	
7,322.1	21.31	32.43	7,175.0	85.2	1,383.1	85.2	10.00	7.92	Sharon Springs
7,400.0	27.99	22.70	7,245.8	114.1	1,397.8	114.1	10.00	8.56	
7,425.4	30.27	20.41	7,268.0	125.6	1,402.3	125.6	10.00	8.99	Niobrara
7,500.0	37.15	15.21	7,330.0	165.0	1,414.8	165.0	10.00	9.23	
7,505.0	37.62	14.91	7,334.0	168.0	1,415.6	168.0	10.00	9.37	B Chalk
7,534.6	40.41	13.32	7,357.0	186.0	1,420.1	186.0	10.00	9.41	B Marl
7,600.0	46.62	10.38	7,404.4	230.1	1,429.3	230.1	10.00	9.51	
7,623.2	48.85	9.47	7,420.0	247.0	1,432.2	247.0	10.00	9.58	C Chalk
7,657.8	52.17	8.24	7,442.0	273.4	1,436.4	273.4	10.00	9.61	C Marl
7,700.0	56.24	6.87	7,466.7	307.3	1,440.8	307.3	10.00	9.65	
7,800.0	65.94	4.08	7,514.9	394.3	1,449.1	394.3	10.00	9.70	
7,858.2	71.61	2.65	7,536.0	448.4	1,452.2	448.4	10.00	9.74	Ft. Hayes
7,900.0	75.68	1.69	7,547.8	488.5	1,453.8	488.5	10.00	9.75	
7,938.1	79.41	0.83	7,556.0	525.7	1,454.6	525.7	10.00	9.76	Codell
8,000.0	85.45	359.49	7,564.2	587.0	1,454.8	587.0	10.00	9.77	
8,046.6	90.00	358.50	7,566.0	633.6	1,453.9	633.6	10.00	9.77	LP @ 7566' TVD; 90°
8,100.0	90.00	358.50	7,566.0	687.0	1,452.5	687.0	0.00	0.00	
8,200.0	90.00	358.50	7,566.0	786.9	1,449.9	786.9	0.00	0.00	
8,300.0	90.00	358.50	7,566.0	886.9	1,447.3	886.9	0.00	0.00	
8,400.0	90.00	358.50	7,566.0	986.9	1,444.7	986.9	0.00	0.00	
8,500.0	90.00	358.50	7,566.0	1,086.8	1,442.1	1,086.8	0.00	0.00	
8,600.0	90.00	358.50	7,566.0	1,186.8	1,439.4	1,186.8	0.00	0.00	
8,700.0	90.00	358.50	7,566.0	1,286.8	1,436.8	1,286.8	0.00	0.00	

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Well:	Edith Ann-Duckworth 4H-21H-O268	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
8,800.0	90.00	358.50	7,566.0	1,386.7	1,434.2	1,386.7	0.00	0.00	
8,900.0	90.00	358.50	7,566.0	1,486.7	1,431.6	1,486.7	0.00	0.00	
9,000.0	90.00	358.50	7,566.0	1,586.7	1,429.0	1,586.7	0.00	0.00	
9,100.0	90.00	358.50	7,566.0	1,686.6	1,426.4	1,686.6	0.00	0.00	
9,200.0	90.00	358.50	7,566.0	1,786.6	1,423.7	1,786.6	0.00	0.00	
9,300.0	90.00	358.50	7,566.0	1,886.5	1,421.1	1,886.5	0.00	0.00	
9,400.0	90.00	358.50	7,566.0	1,986.5	1,418.5	1,986.5	0.00	0.00	
9,500.0	90.00	358.50	7,566.0	2,086.5	1,415.9	2,086.5	0.00	0.00	
9,600.0	90.00	358.50	7,566.0	2,186.4	1,413.3	2,186.4	0.00	0.00	
9,700.0	90.00	358.50	7,566.0	2,286.4	1,410.7	2,286.4	0.00	0.00	
9,800.0	90.00	358.50	7,566.0	2,386.4	1,408.0	2,386.4	0.00	0.00	
9,900.0	90.00	358.50	7,566.0	2,486.3	1,405.4	2,486.3	0.00	0.00	
10,000.0	90.00	358.50	7,566.0	2,586.3	1,402.8	2,586.3	0.00	0.00	
10,100.0	90.00	358.50	7,566.0	2,686.3	1,400.2	2,686.3	0.00	0.00	
10,200.0	90.00	358.50	7,566.0	2,786.2	1,397.6	2,786.2	0.00	0.00	
10,300.0	90.00	358.50	7,566.0	2,886.2	1,394.9	2,886.2	0.00	0.00	
10,400.0	90.00	358.50	7,566.0	2,986.2	1,392.3	2,986.2	0.00	0.00	
10,500.0	90.00	358.50	7,566.0	3,086.1	1,389.7	3,086.1	0.00	0.00	
10,600.0	90.00	358.50	7,566.0	3,186.1	1,387.1	3,186.1	0.00	0.00	
10,700.0	90.00	358.50	7,566.0	3,286.1	1,384.5	3,286.1	0.00	0.00	
10,800.0	90.00	358.50	7,566.0	3,386.0	1,381.9	3,386.0	0.00	0.00	
10,900.0	90.00	358.50	7,566.0	3,486.0	1,379.2	3,486.0	0.00	0.00	
11,000.0	90.00	358.50	7,566.0	3,586.0	1,376.6	3,586.0	0.00	0.00	
11,100.0	90.00	358.50	7,566.0	3,685.9	1,374.0	3,685.9	0.00	0.00	
11,200.0	90.00	358.50	7,566.0	3,785.9	1,371.4	3,785.9	0.00	0.00	
11,300.0	90.00	358.50	7,566.0	3,885.9	1,368.8	3,885.9	0.00	0.00	
11,400.0	90.00	358.50	7,566.0	3,985.8	1,366.2	3,985.8	0.00	0.00	
11,500.0	90.00	358.50	7,566.0	4,085.8	1,363.5	4,085.8	0.00	0.00	
11,600.0	90.00	358.50	7,566.0	4,185.8	1,360.9	4,185.8	0.00	0.00	
11,700.0	90.00	358.50	7,566.0	4,285.7	1,358.3	4,285.7	0.00	0.00	
11,800.0	90.00	358.50	7,566.0	4,385.7	1,355.7	4,385.7	0.00	0.00	
11,900.0	90.00	358.50	7,566.0	4,485.7	1,353.1	4,485.7	0.00	0.00	
12,000.0	90.00	358.50	7,566.0	4,585.6	1,350.4	4,585.6	0.00	0.00	
12,100.0	90.00	358.50	7,566.0	4,685.6	1,347.8	4,685.6	0.00	0.00	
12,200.0	90.00	358.50	7,566.0	4,785.6	1,345.2	4,785.6	0.00	0.00	
12,300.0	90.00	358.50	7,566.0	4,885.5	1,342.6	4,885.5	0.00	0.00	
12,400.0	90.00	358.50	7,566.0	4,985.5	1,340.0	4,985.5	0.00	0.00	
12,500.0	90.00	358.50	7,566.0	5,085.5	1,337.4	5,085.5	0.00	0.00	
12,600.0	90.00	358.50	7,566.0	5,185.4	1,334.7	5,185.4	0.00	0.00	
12,700.0	90.00	358.50	7,566.0	5,285.4	1,332.1	5,285.4	0.00	0.00	
12,800.0	90.00	358.50	7,566.0	5,385.3	1,329.5	5,385.3	0.00	0.00	
12,900.0	90.00	358.50	7,566.0	5,485.3	1,326.9	5,485.3	0.00	0.00	
13,000.0	90.00	358.50	7,566.0	5,585.3	1,324.3	5,585.3	0.00	0.00	
13,100.0	90.00	358.50	7,566.0	5,685.2	1,321.7	5,685.2	0.00	0.00	
13,200.0	90.00	358.50	7,566.0	5,785.2	1,319.0	5,785.2	0.00	0.00	
13,300.0	90.00	358.50	7,566.0	5,885.2	1,316.4	5,885.2	0.00	0.00	
13,400.0	90.00	358.50	7,566.0	5,985.1	1,313.8	5,985.1	0.00	0.00	
13,500.0	90.00	358.50	7,566.0	6,085.1	1,311.2	6,085.1	0.00	0.00	
13,600.0	90.00	358.50	7,566.0	6,185.1	1,308.6	6,185.1	0.00	0.00	
13,700.0	90.00	358.50	7,566.0	6,285.0	1,305.9	6,285.0	0.00	0.00	
13,800.0	90.00	358.50	7,566.0	6,385.0	1,303.3	6,385.0	0.00	0.00	
13,900.0	90.00	358.50	7,566.0	6,485.0	1,300.7	6,485.0	0.00	0.00	

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Edith Ann-Duckworth 4H-21H-O268
Company:	EnCana Oil & Gas (USA) Inc	**TVD Reference:**	WELL @ 4952.0ft (Original Well Elev)
Project:	DJ Wattenberg	**MD Reference:**	WELL @ 4952.0ft (Original Well Elev)
Site:	S21-T2N-R68W (Edith Ann-Duckworth)	**North Reference:**	True
Well:	Edith Ann-Duckworth 4H-21H-O268	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
14,000.0	90.00	358.50	7,566.0	6,584.9	1,298.1	6,584.9	0.00	0.00	
14,100.0	90.00	358.50	7,566.0	6,684.9	1,295.5	6,684.9	0.00	0.00	
14,200.0	90.00	358.50	7,566.0	6,784.9	1,292.9	6,784.9	0.00	0.00	
14,300.0	90.00	358.50	7,566.0	6,884.8	1,290.2	6,884.8	0.00	0.00	
14,400.0	90.00	358.50	7,566.0	6,984.8	1,287.6	6,984.8	0.00	0.00	
14,500.0	90.00	358.50	7,566.0	7,084.8	1,285.0	7,084.8	0.00	0.00	
14,600.0	90.00	358.50	7,566.0	7,184.7	1,282.4	7,184.7	0.00	0.00	
14,700.0	90.00	358.50	7,566.0	7,284.7	1,279.8	7,284.7	0.00	0.00	
14,800.0	90.00	358.50	7,566.0	7,384.7	1,277.2	7,384.7	0.00	0.00	
14,900.0	90.00	358.50	7,566.0	7,484.6	1,274.5	7,484.6	0.00	0.00	
15,000.0	90.00	358.50	7,566.0	7,584.6	1,271.9	7,584.6	0.00	0.00	
15,100.0	90.00	358.50	7,566.0	7,684.6	1,269.3	7,684.6	0.00	0.00	
15,200.0	90.00	358.50	7,566.0	7,784.5	1,266.7	7,784.5	0.00	0.00	
15,300.0	90.00	358.50	7,566.0	7,884.5	1,264.1	7,884.5	0.00	0.00	
15,400.0	90.00	358.50	7,566.0	7,984.5	1,261.4	7,984.5	0.00	0.00	
15,500.0	90.00	358.50	7,566.0	8,084.4	1,258.8	8,084.4	0.00	0.00	
15,600.0	90.00	358.50	7,566.0	8,184.4	1,256.2	8,184.4	0.00	0.00	
15,700.0	90.00	358.50	7,566.0	8,284.4	1,253.6	8,284.4	0.00	0.00	
15,800.0	90.00	358.50	7,566.0	8,384.3	1,251.0	8,384.3	0.00	0.00	
15,900.0	90.00	358.50	7,566.0	8,484.3	1,248.4	8,484.3	0.00	0.00	
16,000.0	90.00	358.50	7,566.0	8,584.3	1,245.7	8,584.3	0.00	0.00	
16,100.0	90.00	358.50	7,566.0	8,684.2	1,243.1	8,684.2	0.00	0.00	
16,200.0	90.00	358.50	7,566.0	8,784.2	1,240.5	8,784.2	0.00	0.00	
16,300.0	90.00	358.50	7,566.0	8,884.1	1,237.9	8,884.1	0.00	0.00	
16,400.0	90.00	358.50	7,566.0	8,984.1	1,235.3	8,984.1	0.00	0.00	
16,500.0	90.00	358.50	7,566.0	9,084.1	1,232.7	9,084.1	0.00	0.00	
16,600.0	90.00	358.50	7,566.0	9,184.0	1,230.0	9,184.0	0.00	0.00	
16,700.0	90.00	358.50	7,566.0	9,284.0	1,227.4	9,284.0	0.00	0.00	
16,800.0	90.00	358.50	7,566.0	9,384.0	1,224.8	9,384.0	0.00	0.00	
16,900.0	90.00	358.50	7,566.0	9,483.9	1,222.2	9,483.9	0.00	0.00	
17,000.0	90.00	358.50	7,566.0	9,583.9	1,219.6	9,583.9	0.00	0.00	
17,100.0	90.00	358.50	7,566.0	9,683.9	1,216.9	9,683.9	0.00	0.00	
17,200.0	90.00	358.50	7,566.0	9,783.8	1,214.3	9,783.8	0.00	0.00	
17,300.0	90.00	358.50	7,566.0	9,883.8	1,211.7	9,883.8	0.00	0.00	
17,346.6	90.00	358.50	7,566.0	9,930.4	1,210.5	9,930.4	0.00	0.00	TD at 17346.6

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Edith Ann-Duckworth 4H - plan hits target center - Point	0.00	0.00	7,566.0	9,930.4	1,210.5	1,296,017.72	3,140,039.17	40.144870	-104.999090

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Edith Ann-Duckworth 4H-21H-O268
Company:	EnCana Oil & Gas (USA) Inc	**TVD Reference:**	WELL @ 4952.0ft (Original Well Elev)
Project:	DJ Wattenberg	**MD Reference:**	WELL @ 4952.0ft (Original Well Elev)
Site:	S21-T2N-R68W (Edith Ann-Duckworth)	**North Reference:**	True
Well:	Edith Ann-Duckworth 4H-21H-O268	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
252.0	252.0	Fox Hills - BASE			
4,402.5	4,325.0	Sussex			
4,665.6	4,582.0	Sussex Marker			
4,957.3	4,867.0	Shannon			
6,321.5	6,200.0	Teepee Buttes (*if present)			
7,322.1	7,175.0	Sharon Springs			
7,425.4	7,268.0	Niobrara			
7,505.0	7,334.0	B Chalk			
7,534.6	7,357.0	B Marl			
7,623.2	7,420.0	C Chalk			
7,657.8	7,442.0	C Marl			
7,858.2	7,536.0	Ft. Hayes			
7,938.1	7,556.0	Codell			

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
200.0	200.0	0.0	0.0	KOP @ 200'
1,428.9	1,419.5	5.6	131.2	EOB; Inc=12.29°
7,148.6	7,008.1	57.6	1,347.5	Start build/turn @ 7148' MD
8,046.6	7,566.0	633.6	1,453.9	LP @ 7566' TVD; 90°
17,346.6	7,566.0	9,930.4	1,210.5	TD at 17346.6

EnCana Oil & Gas (USA) Inc

DJ Wattenberg
S21-T2N-R68W (Edith Ann-Duckworth)
Edith Ann-Duckworth 4H-21H-O268
Hz
Plan #1

Anticollision Report

26 June, 2013

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Edith Ann-Duckworth 4H-21H-O268
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 4952.0ft (Original Well Elev)
Reference Site:	S21-T2N-R68W (Edith Ann-Duckworth)	**MD Reference:**	WELL @ 4952.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Edith Ann-Duckworth 4H-21H-O268	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Hz	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Reference	Plan #1

Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.0ft	**Error Model:**	Systematic Ellipse
Depth Range:	Unlimited	**Scan Method:**	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 500.0ft	**Error Surface:**	Elliptical Conic
Warning Levels Evaluated at:	2.00 **Sigma**		

Survey Tool Program **Date** 6/26/2013

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	17,354.4	Plan #1 (Hz)	Geolink MWD	Geolink MWD

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Edith Ann-Duckworth 4H-21H-O268
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 4952.0ft (Original Well Elev)
Reference Site:	S21-T2N-R68W (Edith Ann-Duckworth)	**MD Reference:**	WELL @ 4952.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Edith Ann-Duckworth 4H-21H-O268	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Hz	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
S21-T2N-R68W (Edith Ann-Duckworth)						
BLISS 41-21 (EXISTING) - KPK WELL - SURVEYS						Out of range
COLCLASURE 42-21 (EXISTING) - KPK WELL - NO SU						Out of range
DUCKWORTH 31-16 (EXISTING) - ENCANA WELL - SU						Out of range
DUCKWORTH 32-16 (EXISTING) - ENCANA WELL - SU						Out of range
DUCKWORTH 33-16 (EXISTING) - ENCANA WELL - SU						Out of range
DUCKWORTH 41-16 (EXISING) - ENCANA WELL - SUR	17,311.8	7,643.7	438.0	238.9	2.200	CC, ES, SF
DUCKWORTH 43-16 (EXISTING) - ENCANA WELL - NO						Out of range
DUCKWORTH 44-16 (EXISTING) - ENCANA WELL - SU						Out of range
DUCKWORTH 6-0-16 (EXISTING) - ENCANA WELL - S						Out of range
DUCKWORTH B UNIT 1 (EXISTING) - ENCANA WELL -						Out of range
DUCKWORTH B UNIT 2 (EXISTING) - ENCANA WELL -						Out of range
EDITH ANN 1 (EXISTING) - ENCANA WELL - NO SURV						Out of range
EDITH ANN 33-21 (EXISTING) - ENCANA WELL - NO S						Out of range
EDITH ANN 34-21 (EXISTING) - ENCANA WELL - NO S						Out of range
EDITH ANN 4-21 (EXISTING) - ENCANA WELL - SURVE	2,229.4	2,183.2	459.3	446.2	35.040	CC
EDITH ANN 4-21 (EXISTING) - ENCANA WELL - SURVE	2,300.0	2,253.8	459.8	446.1	33.623	ES
EDITH ANN 4-21 (EXISTING) - ENCANA WELL - SURVE	2,700.0	2,609.3	492.7	476.5	30.474	SF
EDITH ANN 43-21 (EXISTING) - ENCANA WELL - NO S						Out of range
EDITH ANN 44-21 (EXISTING) - ENCANA WELL - NO S	4,160.0	4,066.0	252.9	231.0	11.574	CC
EDITH ANN 44-21 (EXISTING) - ENCANA WELL - NO S	4,200.0	4,105.1	253.0	231.0	11.460	ES
EDITH ANN 44-21 (EXISTING) - ENCANA WELL - NO S	4,400.0	4,300.5	258.0	235.0	11.204	SF
EDITH ANN 6-8-21 (EXISTING) - ENCANA WELL - SUR	2,764.8	2,761.2	59.9	43.1	3.560	CC, ES, SF
EDITH ANN 8-8-21 (EXISTING) - ENCANA WELL - SUR	6,612.7	6,533.2	182.3	143.1	4.647	CC, ES
EDITH ANN 8-8-21 (EXISTING) - ENCANA WELL - SUR	6,700.0	6,618.5	183.2	143.3	4.592	SF
Edith Ann-Duckworth 4A-21H-O268 - Hz - Plan #1	200.0	198.0	69.9	69.3	115.115	CC, ES
Edith Ann-Duckworth 4A-21H-O268 - Hz - Plan #1	700.0	688.3	112.9	110.6	48.462	SF
Edith Ann-Duckworth 4B-21H-O268 - Hz - Plan #1	200.0	199.0	58.7	58.1	96.419	CC, ES
Edith Ann-Duckworth 4B-21H-O268 - Hz - Plan #1	600.0	594.7	80.4	78.4	40.278	SF
Edith Ann-Duckworth 4C-21H-O268 - Hz - Plan #1	200.0	199.0	50.3	49.7	82.645	CC, ES
Edith Ann-Duckworth 4C-21H-O268 - Hz - Plan #1	600.0	596.4	67.7	65.7	33.873	SF
Edith Ann-Duckworth 4D-21H-O268 - Hz - Plan #1	200.0	199.0	39.2	38.5	64.280	CC, ES
Edith Ann-Duckworth 4D-21H-O268 - Hz - Plan #1	600.0	597.8	53.9	51.9	26.959	SF
Edith Ann-Duckworth 4E-21H-O268 - Hz - Plan #1	200.0	199.0	30.8	30.2	50.505	CC, ES
Edith Ann-Duckworth 4E-21H-O268 - Hz - Plan #1	600.0	598.7	44.7	42.7	22.327	SF
Edith Ann-Duckworth 4F-21H-O268 - Hz - Plan #1	200.0	200.0	19.6	19.0	32.048	CC, ES
Edith Ann-Duckworth 4F-21H-O268 - Hz - Plan #1	900.0	902.0	40.8	37.8	13.382	SF
Edith Ann-Duckworth 4G-21H-O268 - Hz - Plan #1	200.0	200.0	8.4	7.8	13.735	CC, ES
Edith Ann-Duckworth 4G-21H-O268 - Hz - Plan #1	17,346.6	16,993.3	414.0	115.8	1.388	Level 3, SF
JILLSON A 1 (EXISTING) - FOUNDATION WELL - NO S						Out of range
JILLSON A 2 (EXISTING) - FOUNDATION WELL - NO S						Out of range
JILLSON A 3 (EXISTING) - FOUNDATION WELL - NO S	3,855.7	3,763.7	355.2	335.2	17.711	CC
JILLSON A 3 (EXISTING) - FOUNDATION WELL - NO S	3,900.0	3,807.0	355.3	335.0	17.493	ES
JILLSON A 3 (EXISTING) - FOUNDATION WELL - NO S	4,400.0	4,295.5	373.6	350.9	16.476	SF
JILLSON A 4 (EXISTING) - FOUNDATION WELL - NO S						Out of range
KENNEDY 1 (EXISTING) - MACEY & MERSHON WELL						Out of range
KENNEDY 31-21 (EXISTING) - ENCANA WELL - NO SU						Out of range
KENNEDY 32-21 (EXISTING) - ENCANA WELL - NO SU						Out of range
KENNEDY 41-21 (EXISTING) - ENCANA WELL - NO SU						Out of range
KENNEDY 4-2-21 (EXISTING) - ENCANA WELL - SURV						Out of range
KENNEDY 6-0-21 (EXISTING) - ENCANA WELL - SURV						Out of range
KENNEDY 6-4-21 (EXISTING) - ENCANA WELL - SURV						Out of range
KENNEDY 8-0-21 (EXISTING) - ENCANA WELL - SURV	12,428.9	7,954.9	93.4	-13.4	0.875	Level 1, CC, ES, SF
KENNEDY 8-4-21 (EXISTING) - ENCANA WELL - SURV	9,727.7	7,720.2	235.6	167.3	3.449	CC, ES, SF

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Edith Ann-Duckworth 4H-21H-O268
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 4952.0ft (Original Well Elev)
Reference Site:	S21-T2N-R68W (Edith Ann-Duckworth)	**MD Reference:**	WELL @ 4952.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Edith Ann-Duckworth 4H-21H-O268	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Hz	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
S21-T2N-R68W (Edith Ann-Duckworth)						
KENNEDY GAS UNIT 1 (EXISTING) - ENCANA WELL -						Out of range
NORTH RINN 33-9 (EXISTING) - ENCANA WELL - PLA						Out of range
NORTH RINN 34-9 (EXISTING) - ENCANA WELL - PLA						Out of range
NORTH RINN 43-9 (EXISTING) - ENCANA WELL - PLA						Out of range
NORTH RINN 44-9 (EXISTING) - ENCANA WELL - PLA						Out of range
NORTH RINN 4-4-9 (EXISTING) - ENCANA WELL - PLA						Out of range
NORTH RINN 4-6-9 (EXISTING) - ENCANA WELL - PLA						Out of range
NORTH RINN 4-8-9 (EXISTING) - ENCANA WELL - PLA						Out of range
NORTH RINN 6-6-9 (EXISTING) - ENCANA WELL - PLA						Out of range

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Edith Ann-Duckworth 4H-21H-O268
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 4952.0ft (Original Well Elev)
Reference Site:	S21-T2N-R68W (Edith Ann-Duckworth)	**MD Reference:**	WELL @ 4952.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Edith Ann-Duckworth 4H-21H-O268	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Hz	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S21-T2N-R68W (Edith Ann-Duckworth) - DUCKWORTH 41-16 (EXISING) - ENCANA WELL - SURVEY

Survey Program: 88-MWD

Offset Site Error: 0.0 ft

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
17,100.0	7,566.0	7,642.7	7,497.9	173.5	25.4	-89.72	9,884.1	773.5	486.6	291.1	195.42	2.490	
17,200.0	7,566.0	7,643.2	7,498.4	175.2	25.4	-89.79	9,884.1	773.5	452.1	254.9	197.17	2.293	
17,300.0	7,566.0	7,643.7	7,498.9	176.9	25.4	-89.85	9,884.1	773.5	438.2	239.3	198.92	2.203	
17,311.8	7,566.0	7,643.7	7,498.9	177.1	25.4	-89.86	9,884.1	773.5	438.0	238.9	199.13	2.200	CC, ES, SF
17,346.6	7,566.0	7,643.9	7,499.1	177.7	25.4	-89.88	9,884.1	773.5	439.4	239.7	199.74	2.200	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Edith Ann-Duckworth 4H-21H-O268
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 4952.0ft (Original Well Elev)
Reference Site:	S21-T2N-R68W (Edith Ann-Duckworth)	**MD Reference:**	WELL @ 4952.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Edith Ann-Duckworth 4H-21H-O268	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Hz	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S21-T2N-R68W (Edith Ann-Duckworth) - EDITH ANN 4-21 (EXISTING) - ENCANA WELL - SURVEYS

Offset Site Error: 0.0 ft

Survey Program: 140-Geolink MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
1,700.0	1,684.4	1,691.7	1,671.6	4.6	5.0	-41.67	349.8	548.5	496.1	487.5	8.67	57.193	
1,800.0	1,782.1	1,777.1	1,755.0	5.0	5.4	-45.26	364.4	536.9	483.2	473.8	9.47	51.008	
1,900.0	1,879.8	1,871.5	1,846.9	5.4	5.8	-49.45	380.9	524.0	473.2	462.8	10.34	45.757	
2,000.0	1,977.5	1,964.5	1,937.6	5.8	6.2	-53.70	397.2	511.2	466.1	454.9	11.19	41.635	
2,100.0	2,075.2	2,059.9	2,030.8	6.2	6.5	-58.11	413.1	498.2	461.3	449.3	12.04	38.306	
2,200.0	2,172.9	2,154.6	2,123.1	6.6	6.9	-62.63	429.1	484.5	459.4	446.6	12.87	35.699	
2,229.4	2,201.7	2,183.2	2,151.0	6.7	7.1	-64.01	433.8	480.3	459.3	446.2	13.11	35.040	CC
2,300.0	2,270.6	2,253.8	2,219.9	7.0	7.4	-67.41	445.0	469.5	459.8	446.1	13.67	33.623	ES
2,400.0	2,368.3	2,347.5	2,311.4	7.4	7.7	-71.90	458.9	455.0	462.3	447.9	14.39	32.116	
2,500.0	2,466.1	2,433.3	2,395.2	7.9	8.1	-75.88	472.0	442.3	468.5	453.4	15.03	31.167	
2,600.0	2,563.8	2,522.2	2,481.9	8.3	8.5	-79.92	486.8	429.2	478.8	463.2	15.63	30.639	
2,700.0	2,661.5	2,609.3	2,566.6	8.7	8.9	-83.80	501.9	415.6	492.7	476.5	16.17	30.474	SF

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Edith Ann-Duckworth 4H-21H-O268
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 4952.0ft (Original Well Elev)
Reference Site:	S21-T2N-R68W (Edith Ann-Duckworth)	**MD Reference:**	WELL @ 4952.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Edith Ann-Duckworth 4H-21H-O268	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Hz	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S21-T2N-R68W (Edith Ann-Duckworth) - EDITH ANN 44-21 (EXISTING) - ENCANA WELL - NO SURVE

Offset Site Error: 0.0 ft

Survey Program: 8129-Geolink MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
2,200.0	2,172.9	2,150.9	2,150.9	6.6	3.8	-31.82	283.1	701.1	487.8	479.4	8.47	57.617	
2,300.0	2,270.6	2,248.6	2,248.6	7.0	3.9	-33.18	283.1	701.1	469.8	460.8	8.97	52.375	
2,400.0	2,368.3	2,346.3	2,346.3	7.4	4.1	-34.64	283.1	701.1	452.0	442.5	9.49	47.624	
2,500.0	2,466.1	2,444.1	2,444.1	7.9	4.3	-36.23	283.1	701.1	434.5	424.5	10.03	43.311	
2,600.0	2,563.8	2,541.8	2,541.8	8.3	4.4	-37.94	283.1	701.1	417.4	406.8	10.60	39.390	
2,700.0	2,661.5	2,639.5	2,639.5	8.7	4.6	-39.79	283.1	701.1	400.7	389.5	11.18	35.822	
2,800.0	2,759.2	2,737.2	2,737.2	9.1	4.8	-41.80	283.1	701.1	384.4	372.6	11.80	32.577	
2,900.0	2,856.9	2,834.9	2,834.9	9.5	4.9	-43.98	283.1	701.1	368.6	356.2	12.44	29.627	
3,000.0	2,954.6	2,932.6	2,932.6	9.9	5.1	-46.35	283.1	701.1	353.4	340.3	13.11	26.951	
3,100.0	3,052.3	3,030.3	3,030.3	10.3	5.3	-48.92	283.1	701.1	338.9	325.1	13.82	24.530	
3,200.0	3,150.0	3,128.0	3,128.0	10.8	5.5	-51.71	283.1	701.1	325.1	310.6	14.55	22.349	
3,300.0	3,247.7	3,225.7	3,225.7	11.2	5.6	-54.73	283.1	701.1	312.2	296.9	15.31	20.395	
3,400.0	3,345.4	3,323.4	3,323.4	11.6	5.8	-58.00	283.1	701.1	300.2	284.1	16.09	18.656	
3,500.0	3,443.1	3,421.1	3,421.1	12.0	6.0	-61.51	283.1	701.1	289.3	272.4	16.90	17.123	
3,600.0	3,540.9	3,518.9	3,518.9	12.4	6.1	-65.27	283.1	701.1	279.6	261.9	17.71	15.787	
3,700.0	3,638.6	3,616.6	3,616.6	12.8	6.3	-69.28	283.1	701.1	271.2	252.7	18.52	14.641	
3,800.0	3,736.3	3,714.3	3,714.3	13.3	6.5	-73.51	283.1	701.1	264.3	244.9	19.32	13.676	
3,900.0	3,834.0	3,812.0	3,812.0	13.7	6.7	-77.93	283.1	701.1	258.9	238.8	20.09	12.884	
4,000.0	3,931.7	3,909.7	3,909.7	14.1	6.8	-82.51	283.1	701.1	255.2	234.4	20.82	12.257	
4,100.0	4,029.4	4,007.4	4,007.4	14.5	7.0	-87.18	283.1	701.1	253.2	231.7	21.49	11.786	
4,160.0	4,088.0	4,066.0	4,066.0	14.8	7.1	-90.00	283.1	701.1	252.9	231.0	21.85	11.574	CC
4,200.0	4,127.1	4,105.1	4,105.1	14.9	7.2	-91.89	283.1	701.1	253.0	231.0	22.08	11.460	ES
4,300.0	4,224.8	4,202.8	4,202.8	15.3	7.3	-96.57	283.1	701.1	254.6	232.1	22.60	11.270	
4,400.0	4,322.5	4,300.5	4,300.5	15.8	7.5	-101.17	283.1	701.1	258.0	235.0	23.03	11.204	SF
4,500.0	4,420.2	4,398.2	4,398.2	16.2	7.7	-105.62	283.1	701.1	263.1	239.7	23.38	11.249	
4,600.0	4,517.9	4,495.9	4,495.9	16.6	7.8	-109.89	283.1	701.1	269.7	246.0	23.67	11.394	
4,700.0	4,615.6	4,593.6	4,593.6	17.0	8.0	-113.95	283.1	701.1	277.8	253.9	23.89	11.628	
4,800.0	4,713.4	4,691.4	4,691.4	17.4	8.2	-117.76	283.1	701.1	287.3	263.2	24.06	11.938	
4,900.0	4,811.1	4,789.1	4,789.1	17.8	8.4	-121.32	283.1	701.1	297.9	273.7	24.20	12.313	
5,000.0	4,908.8	4,886.8	4,886.8	18.3	8.5	-124.64	283.1	701.1	309.7	285.4	24.30	12.744	
5,100.0	5,006.5	4,984.5	4,984.5	18.7	8.7	-127.70	283.1	701.1	322.5	298.1	24.39	13.220	
5,200.0	5,104.2	5,082.2	5,082.2	19.1	8.9	-130.54	283.1	701.1	336.1	311.6	24.47	13.734	
5,300.0	5,201.9	5,179.9	5,179.9	19.5	9.0	-133.15	283.1	701.1	350.5	325.9	24.55	14.277	
5,400.0	5,299.6	5,277.6	5,277.6	19.9	9.2	-135.56	283.1	701.1	365.5	340.9	24.63	14.844	
5,500.0	5,397.3	5,375.3	5,375.3	20.3	9.4	-137.78	283.1	701.1	381.2	356.5	24.71	15.427	
5,600.0	5,495.0	5,473.0	5,473.0	20.8	9.6	-139.82	283.1	701.1	397.4	372.6	24.80	16.023	
5,700.0	5,592.7	5,570.7	5,570.7	21.2	9.7	-141.70	283.1	701.1	414.0	389.1	24.90	16.627	
5,800.0	5,690.4	5,668.4	5,668.4	21.6	9.9	-143.44	283.1	701.1	431.1	406.0	25.01	17.235	
5,900.0	5,788.1	5,766.1	5,766.1	22.0	10.1	-145.05	283.1	701.1	448.5	423.3	25.13	17.844	
6,000.0	5,885.9	5,863.9	5,863.9	22.4	10.2	-146.54	283.1	701.1	466.2	440.9	25.27	18.452	
6,100.0	5,983.6	5,961.6	5,961.6	22.8	10.4	-147.92	283.1	701.1	484.2	458.8	25.41	19.056	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Edith Ann-Duckworth 4H-21H-O268
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 4952.0ft (Original Well Elev)
Reference Site:	S21-T2N-R68W (Edith Ann-Duckworth)	**MD Reference:**	WELL @ 4952.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Edith Ann-Duckworth 4H-21H-O268	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Hz	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S21-T2N-R68W (Edith Ann-Duckworth) - EDITH ANN 6-8-21 (EXISTING) - ENCANA WELL - SURVEYS

Offset Site Error: 0.0 ft

Survey Program: 80-Geolink MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
1,700.0	1,684.4	1,775.8	1,770.7	4.6	3.5	-20.73	188.1	636.8	491.9	485.7	6.19	79.459	
1,800.0	1,782.1	1,878.5	1,871.2	5.0	3.9	-21.55	178.7	618.3	452.6	446.0	6.60	68.589	
1,900.0	1,879.8	1,978.4	1,968.5	5.4	4.3	-22.51	168.3	598.1	411.0	404.0	7.01	58.603	
2,000.0	1,977.5	2,076.6	2,063.7	5.8	4.7	-23.55	156.8	577.1	368.0	360.6	7.44	49.496	
2,100.0	2,075.2	2,171.8	2,155.5	6.2	5.1	-24.86	144.8	554.8	323.1	315.2	7.87	41.037	
2,200.0	2,172.9	2,260.6	2,240.9	6.6	5.5	-26.51	133.4	533.3	277.6	269.2	8.33	33.317	
2,300.0	2,270.6	2,349.4	2,326.4	7.0	6.0	-28.92	122.3	511.7	232.4	223.6	8.85	26.251	
2,400.0	2,368.3	2,436.3	2,410.0	7.4	6.4	-32.55	112.2	490.5	188.0	178.5	9.50	19.791	
2,500.0	2,466.1	2,527.2	2,497.5	7.9	6.8	-39.16	102.7	467.7	144.9	134.4	10.50	13.799	
2,600.0	2,563.8	2,618.1	2,584.2	8.3	7.3	-52.01	93.1	442.4	102.8	90.5	12.34	8.328	
2,700.0	2,661.5	2,705.6	2,667.1	8.7	7.8	-77.45	82.7	416.4	68.5	53.0	15.45	4.433	
2,764.8	2,724.7	2,761.2	2,719.8	9.0	8.1	-102.79	75.6	399.8	59.9	43.1	16.84	3.560	CC, ES, SF
2,800.0	2,759.2	2,791.6	2,748.5	9.1	8.3	-117.18	71.8	390.8	62.6	45.9	16.66	3.756	
2,900.0	2,856.9	2,878.3	2,830.8	9.5	8.8	-147.49	60.9	365.5	90.8	76.5	14.32	6.341	
3,000.0	2,954.6	2,966.1	2,914.1	9.9	9.3	-163.07	49.2	340.4	132.4	119.6	12.76	10.377	
3,100.0	3,052.3	3,052.5	2,996.2	10.3	9.8	-170.93	38.3	316.2	177.9	165.7	12.22	14.562	
3,200.0	3,150.0	3,138.5	3,078.1	10.8	10.3	-175.32	28.6	291.8	225.4	213.3	12.16	18.547	
3,300.0	3,247.7	3,226.4	3,161.8	11.2	10.8	-178.35	18.3	266.7	273.7	261.5	12.26	22.331	
3,400.0	3,345.4	3,315.9	3,247.2	11.6	11.3	179.58	8.3	241.8	321.8	309.4	12.47	25.819	
3,500.0	3,443.1	3,399.8	3,327.3	12.0	11.7	178.16	-1.0	218.5	370.1	357.4	12.71	29.111	
3,600.0	3,540.9	3,486.7	3,410.0	12.4	12.2	177.21	-9.5	193.7	419.2	406.2	12.99	32.278	
3,700.0	3,638.6	3,567.8	3,487.4	12.8	12.7	176.68	-16.2	170.0	468.6	455.4	13.28	35.283	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Edith Ann-Duckworth 4H-21H-O268
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 4952.0ft (Original Well Elev)
Reference Site:	S21-T2N-R68W (Edith Ann-Duckworth)	**MD Reference:**	WELL @ 4952.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Edith Ann-Duckworth 4H-21H-O268	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Hz	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S21-T2N-R68W (Edith Ann-Duckworth) - EDITH ANN 8-8-21 (EXISTING) - ENCANA WELL - SURVEYS

Offset Site Error: 0.0 ft

Survey Program: 78-Geolink MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
3,400.0	3,345.4	3,303.5	3,264.5	11.6	9.2	7.89	-23.6	1,040.4	497.2	484.1	13.09	37.974	
3,500.0	3,443.1	3,396.3	3,355.8	12.0	9.5	9.37	-34.9	1,052.9	490.9	477.4	13.49	36.400	
3,600.0	3,540.9	3,497.7	3,455.4	12.4	9.9	11.07	-47.5	1,067.1	485.5	471.6	13.91	34.912	
3,700.0	3,638.6	3,601.0	3,557.0	12.8	10.2	12.88	-60.6	1,080.5	479.6	465.2	14.35	33.419	
3,800.0	3,736.3	3,689.0	3,643.4	13.3	10.6	14.47	-72.0	1,092.6	475.0	460.2	14.77	32.161	
3,900.0	3,834.0	3,778.6	3,731.1	13.7	10.9	16.04	-83.5	1,107.0	473.0	457.8	15.19	31.128	
4,000.0	3,931.7	3,881.2	3,831.4	14.1	11.3	17.88	-96.9	1,123.6	471.7	456.0	15.68	30.086	
4,100.0	4,029.4	3,978.7	3,926.9	14.5	11.7	19.48	-108.4	1,139.6	470.6	454.4	16.14	29.165	
4,156.6	4,084.7	4,032.6	3,979.7	14.7	11.9	20.28	-114.1	1,148.9	470.4	454.0	16.39	28.697	
4,200.0	4,127.1	4,075.5	4,021.7	14.9	12.1	20.90	-118.5	1,156.5	470.4	453.8	16.59	28.350	
4,300.0	4,224.8	4,187.3	4,131.4	15.3	12.5	22.50	-129.8	1,175.5	470.1	453.0	17.10	27.488	
4,400.0	4,322.5	4,315.0	4,257.6	15.8	12.9	24.12	-138.7	1,191.9	465.0	447.4	17.64	26.360	
4,500.0	4,420.2	4,434.3	4,376.4	16.2	13.1	25.40	-142.4	1,202.4	454.8	436.7	18.15	25.053	
4,600.0	4,517.9	4,545.9	4,487.8	16.6	13.3	26.64	-144.1	1,208.5	441.2	422.5	18.68	23.623	
4,700.0	4,615.6	4,648.9	4,590.7	17.0	13.4	27.85	-144.8	1,212.3	425.8	406.6	19.20	22.179	
4,800.0	4,713.4	4,747.4	4,689.1	17.4	13.6	28.96	-144.4	1,216.1	410.2	390.5	19.72	20.804	
4,900.0	4,811.1	4,846.4	4,788.1	17.8	13.7	30.11	-143.6	1,219.9	394.7	374.4	20.26	19.475	
5,000.0	4,908.8	4,946.1	4,887.7	18.3	13.8	31.42	-143.0	1,223.4	379.1	358.2	20.85	18.178	
5,100.0	5,006.5	5,045.8	4,987.4	18.7	14.0	32.87	-142.5	1,226.5	363.3	341.8	21.49	16.911	
5,200.0	5,104.2	5,146.0	5,087.5	19.1	14.1	34.50	-141.8	1,229.1	347.4	325.3	22.17	15.671	
5,300.0	5,201.9	5,246.3	5,187.8	19.5	14.2	36.33	-141.1	1,231.1	331.2	308.3	22.91	14.453	
5,400.0	5,299.6	5,346.2	5,287.6	19.9	14.3	38.38	-140.1	1,232.4	314.7	291.0	23.73	13.261	
5,500.0	5,397.3	5,445.6	5,387.1	20.3	14.4	40.69	-139.1	1,233.2	298.1	273.5	24.63	12.105	
5,600.0	5,495.0	5,543.9	5,485.3	20.8	14.6	43.27	-138.0	1,233.6	281.7	256.1	25.61	11.002	
5,700.0	5,592.7	5,642.0	5,583.4	21.2	14.7	46.17	-136.8	1,233.8	265.8	239.1	26.68	9.962	
5,800.0	5,690.4	5,739.7	5,681.2	21.6	14.8	49.44	-135.7	1,233.9	250.6	222.7	27.87	8.992	
5,900.0	5,788.1	5,837.0	5,778.5	22.0	14.9	53.12	-134.7	1,234.0	236.4	207.2	29.17	8.103	
6,000.0	5,885.9	5,934.0	5,875.5	22.4	15.0	57.19	-133.9	1,234.3	223.5	193.0	30.57	7.313	
6,100.0	5,983.6	6,031.9	5,973.3	22.8	15.1	61.74	-133.2	1,234.8	212.2	180.1	32.06	6.618	
6,200.0	6,081.3	6,130.0	6,071.4	23.3	15.2	66.77	-132.4	1,235.1	202.3	168.6	33.62	6.016	
6,300.0	6,179.0	6,227.7	6,169.1	23.7	15.3	72.29	-131.7	1,235.4	194.0	158.8	35.18	5.515	
6,400.0	6,276.7	6,325.4	6,266.8	24.1	15.5	78.25	-131.0	1,235.4	187.8	151.1	36.67	5.120	
6,500.0	6,374.4	6,423.1	6,364.5	24.5	15.6	84.54	-130.3	1,235.5	183.8	145.8	38.01	4.836	
6,600.0	6,472.1	6,520.8	6,462.3	24.9	15.7	91.01	-129.6	1,235.6	182.3	143.2	39.11	4.661	
6,612.7	6,484.5	6,533.2	6,474.7	25.0	15.7	91.84	-129.5	1,235.6	182.3	143.1	39.23	4.647	CC, ES
6,700.0	6,569.8	6,618.5	6,559.9	25.4	15.8	97.54	-128.9	1,235.5	183.2	143.3	39.91	4.592	SF
6,800.0	6,667.5	6,716.0	6,657.4	25.8	15.9	103.95	-128.3	1,235.3	186.7	146.3	40.37	4.624	
6,900.0	6,765.2	6,813.5	6,754.9	26.2	16.1	110.06	-127.8	1,235.1	192.6	152.0	40.53	4.751	
7,000.0	6,862.9	6,910.8	6,852.2	26.6	16.2	115.75	-127.4	1,234.9	200.7	160.3	40.44	4.964	
7,100.0	6,960.7	7,008.1	6,949.5	27.0	16.3	120.94	-127.2	1,234.6	210.9	170.8	40.16	5.252	
7,200.0	7,058.3	7,105.2	7,046.6	27.4	16.4	148.00	-127.1	1,234.2	224.8	185.4	39.45	5.699	
7,300.0	7,154.3	7,200.7	7,142.2	27.9	16.5	178.76	-127.2	1,233.8	251.9	214.0	37.93	6.643	
7,400.0	7,245.8	7,291.9	7,233.3	28.3	16.7	-166.88	-127.3	1,233.2	292.1	256.3	35.84	8.150	
7,500.0	7,330.0	7,375.7	7,317.1	28.7	16.8	-159.24	-127.3	1,232.5	344.5	311.3	33.18	10.381	
7,600.0	7,404.4	7,449.5	7,390.9	29.2	16.9	-153.87	-127.5	1,232.0	408.4	378.3	30.06	13.587	
7,700.0	7,466.7	7,511.0	7,452.5	29.6	17.0	-148.26	-127.8	1,231.8	482.7	455.8	26.95	17.911	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Edith Ann-Duckworth 4H-21H-O268
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 4952.0ft (Original Well Elev)
Reference Site:	S21-T2N-R68W (Edith Ann-Duckworth)	**MD Reference:**	WELL @ 4952.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Edith Ann-Duckworth 4H-21H-O268	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Hz	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S21-T2N-R68W (Edith Ann-Duckworth) - Edith Ann-Duckworth 4A-21H-O268 - Hz - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-Geolink MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-89.95	0.1	-69.9	69.9				
100.0	100.0	98.0	98.0	0.1	0.1	-89.95	0.1	-69.9	69.9	69.7	0.26	269.764	
200.0	200.0	198.0	198.0	0.3	0.3	-89.95	0.1	-69.9	69.9	69.3	0.61	115.115	CC, ES
300.0	300.0	296.8	296.8	0.5	0.5	-177.53	0.1	-70.7	71.6	70.7	0.95	75.052	
400.0	400.0	395.4	395.3	0.7	0.7	-177.61	0.1	-73.2	76.8	75.5	1.30	59.042	
500.0	499.9	493.6	493.5	0.8	0.8	-177.72	0.1	-77.4	85.4	83.8	1.65	51.898	
600.0	599.7	591.3	591.0	1.0	1.0	-177.84	0.1	-83.3	97.4	95.5	1.99	48.999	
700.0	699.4	688.3	687.8	1.3	1.2	-177.95	0.1	-90.7	112.9	110.6	2.33	48.462	SF
800.0	798.9	784.5	783.5	1.5	1.5	-178.05	0.1	-99.7	131.8	129.1	2.67	49.378	
900.0	898.3	879.6	878.0	1.8	1.7	-178.14	0.1	-110.2	153.9	150.9	3.00	51.253	
1,000.0	997.4	973.6	971.3	2.0	2.0	-178.21	0.2	-122.1	179.4	176.1	3.34	53.798	
1,100.0	1,096.3	1,066.3	1,063.0	2.3	2.2	-178.27	0.2	-135.3	208.1	204.5	3.66	56.832	
1,200.0	1,194.9	1,157.5	1,153.0	2.7	2.5	-178.32	0.2	-149.7	240.1	236.1	3.99	60.235	
1,300.0	1,293.3	1,247.1	1,241.3	3.0	2.8	-178.36	0.3	-165.3	275.1	270.8	4.30	63.926	
1,400.0	1,391.2	1,335.0	1,327.6	3.4	3.1	-178.39	0.3	-182.0	313.2	308.6	4.62	67.847	
1,500.0	1,489.0	1,425.4	1,416.2	3.8	3.5	-178.42	0.3	-200.0	353.5	348.6	4.94	71.564	
1,600.0	1,586.7	1,516.9	1,505.8	4.2	3.8	-178.45	0.4	-218.4	393.9	388.7	5.27	74.776	
1,700.0	1,684.4	1,608.4	1,595.5	4.6	4.2	-178.48	0.4	-236.7	434.3	428.7	5.60	77.613	
1,800.0	1,782.1	1,699.9	1,685.1	5.0	4.5	-178.50	0.5	-255.0	474.7	468.8	5.92	80.137	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Edith Ann-Duckworth 4H-21H-O268
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 4952.0ft (Original Well Elev)
Reference Site:	S21-T2N-R68W (Edith Ann-Duckworth)	**MD Reference:**	WELL @ 4952.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Edith Ann-Duckworth 4H-21H-O268	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Hz	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S21-T2N-R68W (Edith Ann-Duckworth) - Edith Ann-Duckworth 4B-21H-O268 - Hz - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-Geolink MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-89.95	0.1	-58.7	58.7				
100.0	100.0	99.0	99.0	0.1	0.1	-89.95	0.1	-58.7	58.7	58.5	0.26	225.463	
200.0	200.0	199.0	199.0	0.3	0.3	-89.95	0.1	-58.7	58.7	58.1	0.61	96.419	CC, ES
300.0	300.0	299.0	299.0	0.5	0.5	-177.54	0.1	-58.7	59.6	58.6	0.96	62.210	
400.0	400.0	397.9	397.9	0.7	0.7	-177.64	0.1	-59.6	63.1	61.8	1.30	48.329	
500.0	499.9	496.5	496.5	0.8	0.8	-177.77	0.1	-62.1	70.0	68.3	1.65	42.398	
600.0	599.7	594.7	594.5	1.0	1.0	-177.92	0.1	-66.3	80.4	78.4	2.00	40.278	SF
700.0	699.4	692.2	691.9	1.3	1.2	-178.05	0.1	-72.2	94.2	91.8	2.34	40.283	
800.0	798.9	789.0	788.4	1.5	1.4	-178.17	0.1	-79.6	111.4	108.7	2.68	41.593	
900.0	898.3	884.8	883.8	1.8	1.6	-178.27	0.1	-88.6	131.9	128.9	3.01	43.767	
1,000.0	997.4	979.6	978.0	2.0	1.9	-178.34	0.1	-99.0	155.8	152.5	3.35	46.544	
1,100.0	1,096.3	1,073.5	1,071.2	2.3	2.1	-178.40	0.1	-110.8	182.9	179.3	3.68	49.744	
1,200.0	1,194.9	1,169.1	1,165.9	2.7	2.4	-178.46	0.2	-123.5	212.3	208.3	4.01	52.960	
1,300.0	1,293.3	1,264.2	1,260.2	3.0	2.6	-178.51	0.2	-136.0	243.3	239.0	4.34	56.104	
1,400.0	1,391.2	1,358.7	1,353.8	3.4	2.9	-178.55	0.2	-148.5	276.0	271.4	4.66	59.195	
1,500.0	1,489.0	1,452.7	1,447.1	3.8	3.1	-178.60	0.2	-160.9	309.9	304.9	4.99	62.058	
1,600.0	1,586.7	1,546.8	1,540.3	4.2	3.4	-178.64	0.3	-173.3	343.9	338.6	5.33	64.541	
1,700.0	1,684.4	1,640.8	1,633.5	4.6	3.7	-178.67	0.3	-185.7	377.9	372.2	5.66	66.732	
1,800.0	1,782.1	1,734.9	1,726.8	5.0	3.9	-178.70	0.3	-198.1	411.9	405.9	6.00	68.680	
1,900.0	1,879.8	1,828.9	1,820.0	5.4	4.2	-178.73	0.3	-210.5	445.9	439.5	6.33	70.422	
2,000.0	1,977.5	1,923.0	1,913.2	5.8	4.5	-178.75	0.4	-222.9	479.9	473.2	6.67	71.991	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Edith Ann-Duckworth 4H-21H-O268
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 4952.0ft (Original Well Elev)
Reference Site:	S21-T2N-R68W (Edith Ann-Duckworth)	**MD Reference:**	WELL @ 4952.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Edith Ann-Duckworth 4H-21H-O268	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Hz	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S21-T2N-R68W (Edith Ann-Duckworth) - Edith Ann-Duckworth 4C-21H-O268 - Hz - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-Geolink MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-89.95	0.0	-50.3	50.4				
100.0	100.0	99.0	99.0	0.1	0.1	-89.95	0.0	-50.3	50.3	50.1	0.26	193.254	
200.0	200.0	199.0	199.0	0.3	0.3	-89.95	0.0	-50.3	50.3	49.7	0.61	82.645	CC, ES
300.0	300.0	299.0	299.0	0.5	0.5	-177.55	0.0	-50.3	51.2	50.3	0.96	53.453	
400.0	400.0	399.0	399.0	0.7	0.7	-177.66	0.0	-50.3	53.8	52.5	1.31	41.192	
500.0	499.9	497.9	497.9	0.8	0.8	-177.82	0.0	-51.2	59.0	57.4	1.65	35.707	
600.0	599.7	596.4	596.4	1.0	1.0	-177.99	0.1	-53.7	67.7	65.7	2.00	33.873	SF
700.0	699.4	694.8	694.7	1.3	1.2	-178.13	0.1	-57.8	79.7	77.4	2.34	34.034	
800.0	798.9	793.8	793.5	1.5	1.4	-178.26	0.1	-62.4	93.9	91.2	2.69	34.955	
900.0	898.3	892.5	892.2	1.8	1.5	-178.39	0.2	-67.0	109.8	106.8	3.03	36.254	
1,000.0	997.4	990.9	990.5	2.0	1.7	-178.50	0.2	-71.6	127.5	124.1	3.37	37.818	
1,100.0	1,096.3	1,089.0	1,088.5	2.3	1.9	-178.60	0.3	-76.1	146.8	143.1	3.71	39.576	
1,200.0	1,194.9	1,186.8	1,186.1	2.7	2.1	-178.69	0.3	-80.7	167.9	163.8	4.05	41.482	
1,300.0	1,293.3	1,284.2	1,283.4	3.0	2.3	-178.77	0.3	-85.2	190.6	186.2	4.38	43.505	
1,400.0	1,391.2	1,381.1	1,380.3	3.4	2.5	-178.84	0.4	-89.7	215.1	210.4	4.71	45.622	
1,500.0	1,489.0	1,477.8	1,476.8	3.8	2.7	-178.91	0.4	-94.2	240.8	235.7	5.05	47.658	
1,600.0	1,586.7	1,574.4	1,573.3	4.2	2.8	-178.96	0.5	-98.7	266.6	261.2	5.39	49.427	
1,700.0	1,684.4	1,671.0	1,669.8	4.6	3.0	-179.01	0.5	-103.1	292.4	286.6	5.73	50.985	
1,800.0	1,782.1	1,767.6	1,766.3	5.0	3.2	-179.04	0.5	-107.6	318.2	312.1	6.08	52.369	
1,900.0	1,879.8	1,864.2	1,862.9	5.4	3.4	-179.08	0.6	-112.1	343.9	337.5	6.42	53.607	
2,000.0	1,977.5	1,960.9	1,959.4	5.8	3.6	-179.10	0.6	-116.6	369.7	363.0	6.76	54.720	
2,100.0	2,075.2	2,057.5	2,055.9	6.2	3.8	-179.13	0.6	-121.1	395.5	388.4	7.10	55.727	
2,200.0	2,172.9	2,154.1	2,152.4	6.6	4.0	-179.15	0.7	-125.6	421.3	413.9	7.44	56.641	
2,300.0	2,270.6	2,250.7	2,248.9	7.0	4.1	-179.17	0.7	-130.0	447.1	439.3	7.78	57.476	
2,400.0	2,368.3	2,347.3	2,345.4	7.4	4.3	-179.18	0.8	-134.5	472.9	464.8	8.12	58.240	
2,500.0	2,466.1	2,443.9	2,441.9	7.9	4.5	-179.20	0.8	-139.0	498.7	490.2	8.46	58.943	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Edith Ann-Duckworth 4H-21H-O268
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 4952.0ft (Original Well Elev)
Reference Site:	S21-T2N-R68W (Edith Ann-Duckworth)	**MD Reference:**	WELL @ 4952.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Edith Ann-Duckworth 4H-21H-O268	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Hz	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S21-T2N-R68W (Edith Ann-Duckworth) - Edith Ann-Duckworth 4D-21H-O268 - Hz - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-Geolink MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-89.95	0.0	-39.2	39.2				
100.0	100.0	99.0	99.0	0.1	0.1	-89.95	0.0	-39.2	39.2	38.9	0.26	150.308	
200.0	200.0	199.0	199.0	0.3	0.3	-89.95	0.0	-39.2	39.2	38.5	0.61	64.280	CC, ES
300.0	300.0	299.0	299.0	0.5	0.5	-177.56	0.0	-39.2	40.0	39.1	0.96	41.776	
400.0	400.0	399.0	399.0	0.7	0.7	-177.71	0.0	-39.2	42.6	41.3	1.31	32.631	
500.0	499.9	498.9	498.9	0.8	0.8	-177.92	0.0	-39.2	47.0	45.3	1.65	28.399	
600.0	599.7	597.8	597.8	1.0	1.0	-178.14	0.0	-40.0	53.9	51.9	2.00	26.959	SF
700.0	699.4	696.7	696.7	1.3	1.2	-178.34	0.0	-42.3	64.1	61.8	2.35	27.336	
800.0	798.9	796.0	795.9	1.5	1.4	-178.51	0.0	-44.9	76.3	73.6	2.69	28.349	
900.0	898.3	895.0	894.9	1.8	1.5	-178.66	0.1	-47.5	90.2	87.1	3.03	29.715	
1,000.0	997.4	993.8	993.7	2.0	1.7	-178.79	0.1	-50.0	105.8	102.4	3.38	31.328	
1,100.0	1,096.3	1,092.3	1,092.1	2.3	1.9	-178.90	0.1	-52.6	123.1	119.4	3.72	33.122	
1,200.0	1,194.9	1,190.5	1,190.3	2.7	2.1	-179.00	0.1	-55.1	142.2	138.1	4.06	35.054	
1,300.0	1,293.3	1,288.3	1,288.0	3.0	2.2	-179.08	0.1	-57.6	162.9	158.5	4.39	37.095	
1,400.0	1,391.2	1,385.7	1,385.5	3.4	2.4	-179.15	0.1	-60.2	185.4	180.7	4.73	39.224	
1,500.0	1,489.0	1,482.9	1,482.6	3.8	2.6	-179.22	0.1	-62.7	209.1	204.0	5.07	41.278	
1,600.0	1,586.7	1,580.0	1,579.7	4.2	2.8	-179.27	0.1	-65.2	232.9	227.5	5.41	43.067	
1,700.0	1,684.4	1,677.1	1,676.7	4.6	2.9	-179.31	0.1	-67.7	256.7	251.0	5.75	44.643	
1,800.0	1,782.1	1,774.2	1,773.8	5.0	3.1	-179.34	0.1	-70.2	280.5	274.4	6.09	46.042	
1,900.0	1,879.8	1,871.4	1,870.9	5.4	3.3	-179.37	0.1	-72.7	304.3	297.9	6.44	47.292	
2,000.0	1,977.5	1,968.5	1,968.0	5.8	3.5	-179.40	0.1	-75.2	328.1	321.4	6.78	48.417	
2,100.0	2,075.2	2,065.6	2,065.1	6.2	3.6	-179.42	0.1	-77.8	351.9	344.8	7.12	49.434	
2,200.0	2,172.9	2,162.7	2,162.2	6.6	3.8	-179.44	0.2	-80.3	375.7	368.3	7.46	50.358	
2,300.0	2,270.6	2,259.9	2,259.3	7.0	4.0	-179.45	0.2	-82.8	399.5	391.7	7.80	51.201	
2,400.0	2,368.3	2,357.0	2,356.4	7.4	4.2	-179.47	0.2	-85.3	423.3	415.2	8.15	51.973	
2,500.0	2,466.1	2,454.1	2,453.5	7.9	4.3	-179.48	0.2	-87.8	447.1	438.7	8.49	52.683	
2,600.0	2,563.8	2,551.2	2,550.6	8.3	4.5	-179.49	0.2	-90.3	471.0	462.1	8.83	53.339	
2,700.0	2,661.5	2,648.4	2,647.7	8.7	4.7	-179.50	0.2	-92.8	494.8	485.6	9.17	53.945	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Edith Ann-Duckworth 4H-21H-O268
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 4952.0ft (Original Well Elev)
Reference Site:	S21-T2N-R68W (Edith Ann-Duckworth)	**MD Reference:**	WELL @ 4952.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Edith Ann-Duckworth 4H-21H-O268	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Hz	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S21-T2N-R68W (Edith Ann-Duckworth) - Edith Ann-Duckworth 4E-21H-O268 - Hz - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-Geolink MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-89.95	0.0	-30.8	30.8				
100.0	100.0	99.0	99.0	0.1	0.1	-89.95	0.0	-30.8	30.8	30.5	0.26	118.099	
200.0	200.0	199.0	199.0	0.3	0.3	-89.95	0.0	-30.8	30.8	30.2	0.61	50.505	CC, ES
300.0	300.0	299.0	299.0	0.5	0.5	-177.57	0.0	-30.8	31.6	30.7	0.96	33.019	
400.0	400.0	399.0	399.0	0.7	0.7	-177.76	0.0	-30.8	34.3	32.9	1.31	26.210	
500.0	499.9	498.9	498.9	0.8	0.8	-178.01	0.0	-30.8	38.6	37.0	1.65	23.330	
600.0	599.7	598.7	598.7	1.0	1.0	-178.28	0.0	-30.8	44.7	42.7	2.00	22.327	SF
700.0	699.4	698.4	698.4	1.3	1.2	-178.53	0.0	-30.8	52.6	50.2	2.35	22.370	
800.0	798.9	797.9	797.9	1.5	1.3	-178.76	0.0	-30.8	62.1	59.4	2.70	23.056	
900.0	898.3	897.3	897.3	1.8	1.5	-178.95	0.0	-30.8	73.5	70.4	3.04	24.166	
1,000.0	997.4	996.4	996.4	2.0	1.7	-179.10	0.0	-30.8	86.5	83.1	3.38	25.572	
1,100.0	1,096.3	1,095.3	1,095.3	2.3	1.9	-179.23	0.0	-30.8	101.3	97.6	3.72	27.194	
1,200.0	1,194.9	1,193.9	1,193.9	2.7	2.0	-179.34	0.0	-30.8	117.8	113.7	4.06	28.979	
1,300.0	1,293.3	1,292.3	1,292.3	3.0	2.2	-179.43	0.0	-30.8	136.0	131.6	4.40	30.892	
1,400.0	1,391.2	1,390.2	1,390.2	3.4	2.4	-179.50	0.0	-30.8	155.9	151.2	4.74	32.907	
1,500.0	1,489.0	1,488.0	1,488.0	3.8	2.6	-179.56	0.0	-30.8	177.2	172.1	5.08	34.871	
1,600.0	1,586.7	1,585.7	1,585.7	4.2	2.7	-179.60	0.0	-30.8	198.4	193.0	5.42	36.584	
1,700.0	1,684.4	1,683.4	1,683.4	4.6	2.9	-179.64	0.0	-30.8	219.7	214.0	5.77	38.093	
1,800.0	1,782.1	1,781.1	1,781.1	5.0	3.1	-179.67	0.0	-30.8	241.0	234.9	6.11	39.432	
1,900.0	1,879.8	1,878.8	1,878.8	5.4	3.2	-179.70	0.0	-30.8	262.3	255.8	6.46	40.629	
2,000.0	1,977.5	1,976.5	1,976.5	5.8	3.4	-179.72	0.0	-30.8	283.6	276.8	6.80	41.705	
2,100.0	2,075.2	2,074.2	2,074.2	6.2	3.6	-179.74	0.0	-30.8	304.9	297.7	7.14	42.678	
2,200.0	2,172.9	2,171.9	2,171.9	6.6	3.7	-179.76	0.0	-30.8	326.1	318.7	7.49	43.562	
2,300.0	2,270.6	2,269.6	2,269.6	7.0	3.9	-179.77	0.0	-30.8	347.4	339.6	7.83	44.368	
2,400.0	2,368.3	2,367.3	2,367.3	7.4	4.1	-179.79	0.0	-30.8	368.7	360.5	8.17	45.106	
2,500.0	2,466.1	2,465.1	2,465.1	7.9	4.3	-179.80	0.0	-30.8	390.0	381.5	8.52	45.785	
2,600.0	2,563.8	2,562.8	2,562.8	8.3	4.4	-179.81	0.0	-30.8	411.3	402.4	8.86	46.412	
2,700.0	2,661.5	2,660.5	2,660.5	8.7	4.6	-179.82	0.0	-30.8	432.6	423.4	9.21	46.992	
2,800.0	2,759.2	2,758.2	2,758.2	9.1	4.8	-179.83	0.0	-30.8	453.9	444.3	9.55	47.530	
2,900.0	2,856.9	2,855.9	2,855.9	9.5	4.9	-179.83	0.0	-30.8	475.1	465.2	9.89	48.030	
3,000.0	2,954.6	2,953.6	2,953.6	9.9	5.1	-179.84	0.0	-30.8	496.4	486.2	10.24	48.498	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Edith Ann-Duckworth 4H-21H-O268
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 4952.0ft (Original Well Elev)
Reference Site:	S21-T2N-R68W (Edith Ann-Duckworth)	**MD Reference:**	WELL @ 4952.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Edith Ann-Duckworth 4H-21H-O268	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Hz	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S21-T2N-R68W (Edith Ann-Duckworth) - Edith Ann-Duckworth 4F-21H-O268 - Hz - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-Geolink MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-89.95	0.0	-19.6	19.6				
100.0	100.0	100.0	100.0	0.1	0.1	-89.95	0.0	-19.6	19.6	19.3	0.26	74.778	
200.0	200.0	200.0	200.0	0.3	0.3	-89.95	0.0	-19.6	19.6	19.0	0.61	32.048	CC, ES
300.0	300.0	300.0	300.0	0.5	0.5	-177.61	0.0	-19.6	20.4	19.5	0.96	21.304	
400.0	400.0	400.0	400.0	0.7	0.7	-177.88	0.0	-19.6	23.1	21.8	1.31	17.626	
500.0	499.9	500.3	500.3	0.8	0.8	-178.04	0.1	-18.7	26.6	24.9	1.66	16.019	
600.0	599.7	600.8	600.7	1.0	1.0	-177.97	0.4	-16.1	30.0	28.0	2.01	14.972	
700.0	699.4	701.3	701.1	1.3	1.2	-177.73	0.8	-11.7	33.5	31.2	2.36	14.236	
800.0	798.9	801.8	801.5	1.5	1.4	-177.38	1.5	-5.6	37.0	34.3	2.70	13.689	
900.0	898.3	902.0	901.4	1.8	1.6	-176.99	2.2	1.9	40.8	37.8	3.05	13.382	SF
1,000.0	997.4	1,001.8	1,000.9	2.0	1.8	-176.78	3.0	9.6	46.3	42.9	3.40	13.618	
1,100.0	1,096.3	1,101.6	1,100.4	2.3	2.0	-176.72	3.8	17.2	53.5	49.7	3.74	14.279	
1,200.0	1,194.9	1,201.2	1,199.7	2.7	2.2	-176.76	4.6	24.8	62.4	58.3	4.09	15.256	
1,300.0	1,293.3	1,300.6	1,298.8	3.0	2.4	-176.87	5.3	32.3	73.0	68.6	4.43	16.478	
1,400.0	1,391.2	1,399.8	1,397.8	3.4	2.6	-177.01	6.1	39.9	85.4	80.7	4.78	17.892	
1,500.0	1,489.0	1,498.9	1,496.5	3.8	2.9	-177.16	6.9	47.5	99.1	94.0	5.12	19.353	
1,600.0	1,586.7	1,597.9	1,595.3	4.2	3.1	-177.27	7.7	55.0	112.9	107.4	5.47	20.633	
1,700.0	1,684.4	1,697.0	1,694.0	4.6	3.3	-177.36	8.5	62.6	126.6	120.8	5.82	21.760	
1,800.0	1,782.1	1,796.0	1,792.8	5.0	3.5	-177.43	9.2	70.1	140.4	134.2	6.17	22.760	
1,900.0	1,879.8	1,895.1	1,891.6	5.4	3.7	-177.49	10.0	77.7	154.1	147.6	6.52	23.652	
2,000.0	1,977.5	1,994.1	1,990.3	5.8	3.9	-177.54	10.8	85.2	167.9	161.0	6.86	24.455	
2,100.0	2,075.2	2,093.2	2,089.1	6.2	4.1	-177.58	11.6	92.8	181.6	174.4	7.21	25.180	
2,200.0	2,172.9	2,192.2	2,187.8	6.6	4.4	-177.62	12.3	100.3	195.4	187.8	7.56	25.838	
2,300.0	2,270.6	2,291.3	2,286.6	7.0	4.6	-177.65	13.1	107.9	209.1	201.2	7.91	26.438	
2,400.0	2,368.3	2,390.3	2,385.3	7.4	4.8	-177.68	13.9	115.4	222.9	214.6	8.26	26.988	
2,500.0	2,466.1	2,489.4	2,484.1	7.9	5.0	-177.70	14.7	123.0	236.6	228.0	8.61	27.493	
2,600.0	2,563.8	2,588.4	2,582.9	8.3	5.2	-177.73	15.4	130.5	250.4	241.4	8.96	27.959	
2,700.0	2,661.5	2,687.5	2,681.6	8.7	5.4	-177.74	16.2	138.1	264.2	254.9	9.30	28.390	
2,800.0	2,759.2	2,786.5	2,780.4	9.1	5.7	-177.76	17.0	145.6	277.9	268.3	9.65	28.790	
2,900.0	2,856.9	2,885.6	2,879.1	9.5	5.9	-177.78	17.8	153.2	291.7	281.7	10.00	29.162	
3,000.0	2,954.6	2,984.6	2,977.9	9.9	6.1	-177.79	18.5	160.7	305.4	295.1	10.35	29.509	
3,100.0	3,052.3	3,083.7	3,076.7	10.3	6.3	-177.81	19.3	168.3	319.2	308.5	10.70	29.834	
3,200.0	3,150.0	3,182.7	3,175.4	10.8	6.5	-177.82	20.1	175.8	332.9	321.9	11.05	30.138	
3,300.0	3,247.7	3,281.8	3,274.2	11.2	6.7	-177.83	20.9	183.4	346.7	335.3	11.40	30.424	
3,400.0	3,345.4	3,380.8	3,372.9	11.6	7.0	-177.84	21.6	190.9	360.4	348.7	11.74	30.692	
3,500.0	3,443.1	3,479.9	3,471.7	12.0	7.2	-177.85	22.4	198.5	374.2	362.1	12.09	30.945	
3,600.0	3,540.9	3,578.9	3,570.4	12.4	7.4	-177.86	23.2	206.0	387.9	375.5	12.44	31.184	
3,700.0	3,638.6	3,678.0	3,669.2	12.8	7.6	-177.87	24.0	213.6	401.7	388.9	12.79	31.410	
3,800.0	3,736.3	3,777.0	3,768.0	13.3	7.8	-177.87	24.7	221.2	415.4	402.3	13.14	31.624	
3,900.0	3,834.0	3,876.1	3,866.7	13.7	8.1	-177.88	25.5	228.7	429.2	415.7	13.49	31.827	
4,000.0	3,931.7	3,975.1	3,965.5	14.1	8.3	-177.89	26.3	236.3	443.0	429.1	13.83	32.020	
4,100.0	4,029.4	4,074.2	4,064.2	14.5	8.5	-177.89	27.1	243.8	456.7	442.5	14.18	32.203	
4,200.0	4,127.1	4,173.2	4,163.0	14.9	8.7	-177.90	27.8	251.4	470.5	455.9	14.53	32.378	
4,300.0	4,224.8	4,272.3	4,261.8	15.3	8.9	-177.90	28.6	258.9	484.2	469.3	14.88	32.544	
4,400.0	4,322.5	4,371.3	4,360.5	15.8	9.1	-177.91	29.4	266.5	498.0	482.7	15.23	32.703	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Edith Ann-Duckworth 4H-21H-O268
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 4952.0ft (Original Well Elev)
Reference Site:	S21-T2N-R68W (Edith Ann-Duckworth)	**MD Reference:**	WELL @ 4952.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Edith Ann-Duckworth 4H-21H-O268	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Hz	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S21-T2N-R68W (Edith Ann-Duckworth) - Edith Ann-Duckworth 4G-21H-O268 - Hz - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-Geolink MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-89.94	0.0	-8.4	8.4				
100.0	100.0	100.0	100.0	0.1	0.1	-89.94	0.0	-8.4	8.4	8.1	0.26	32.048	
200.0	200.0	200.0	200.0	0.3	0.3	-89.94	0.0	-8.4	8.4	7.8	0.61	13.735	CC, ES
300.0	300.0	300.0	300.0	0.5	0.5	-177.73	0.0	-8.4	9.3	8.3	0.96	9.650	
400.0	400.0	400.2	400.2	0.7	0.7	-177.77	0.1	-7.5	11.0	9.7	1.31	8.411	
500.0	499.9	500.3	500.3	0.8	0.8	-177.24	0.4	-4.9	12.8	11.1	1.66	7.699	
600.0	599.7	600.6	600.4	1.0	1.0	-176.34	0.9	-0.6	14.5	12.5	2.01	7.238	
700.0	699.4	700.8	700.5	1.3	1.2	-175.21	1.6	5.5	16.3	13.9	2.36	6.919	
800.0	798.9	801.1	800.5	1.5	1.4	-173.90	2.5	13.4	18.1	15.4	2.71	6.685	
900.0	898.3	901.4	900.3	1.8	1.7	-172.48	3.6	22.9	19.9	16.9	3.06	6.507	
1,000.0	997.4	1,001.7	1,000.0	2.0	1.9	-170.97	4.9	34.3	21.8	18.3	3.42	6.365	
1,100.0	1,096.3	1,102.1	1,099.5	2.3	2.2	-169.40	6.4	47.3	23.6	19.9	3.78	6.247	
1,200.0	1,194.9	1,202.3	1,198.6	2.7	2.5	-167.91	8.0	61.9	25.7	21.6	4.16	6.189	
1,300.0	1,293.3	1,302.2	1,297.4	3.0	2.8	-167.28	9.7	76.6	29.3	24.8	4.53	6.467	
1,400.0	1,391.2	1,402.1	1,396.2	3.4	3.1	-167.45	11.4	91.4	34.6	29.7	4.90	7.059	
1,500.0	1,489.0	1,501.9	1,494.9	3.8	3.4	-167.97	13.1	106.2	41.1	35.9	5.26	7.813	
1,600.0	1,586.7	1,601.7	1,593.5	4.2	3.7	-168.36	14.8	120.9	47.7	42.1	5.63	8.479	
1,700.0	1,684.4	1,701.4	1,692.2	4.6	4.0	-168.66	16.5	135.7	54.4	48.4	6.00	9.063	
1,800.0	1,782.1	1,801.2	1,790.9	5.0	4.3	-168.90	18.2	150.4	61.0	54.6	6.36	9.579	
1,900.0	1,879.8	1,901.0	1,889.5	5.4	4.6	-169.08	19.8	165.2	67.6	60.9	6.73	10.039	
2,000.0	1,977.5	2,000.8	1,988.2	5.8	4.9	-169.24	21.5	180.0	74.2	67.1	7.10	10.451	
2,100.0	2,075.2	2,100.6	2,086.9	6.2	5.2	-169.37	23.2	194.7	80.8	73.4	7.47	10.822	
2,200.0	2,172.9	2,200.3	2,185.5	6.6	5.5	-169.48	24.9	209.5	87.5	79.6	7.84	11.157	
2,300.0	2,270.6	2,300.1	2,284.2	7.0	5.8	-169.57	26.6	224.2	94.1	85.9	8.21	11.463	
2,400.0	2,368.3	2,399.9	2,382.9	7.4	6.1	-169.66	28.3	239.0	100.7	92.1	8.58	11.742	
2,500.0	2,466.1	2,499.7	2,481.5	7.9	6.4	-169.73	30.0	253.7	107.3	98.4	8.95	11.998	
2,600.0	2,563.8	2,599.5	2,580.2	8.3	6.7	-169.79	31.7	268.5	114.0	104.6	9.31	12.234	
2,700.0	2,661.5	2,699.2	2,678.9	8.7	7.1	-169.85	33.3	283.3	120.6	110.9	9.68	12.451	
2,800.0	2,759.2	2,799.0	2,777.5	9.1	7.4	-169.90	35.0	298.0	127.2	117.2	10.05	12.653	
2,900.0	2,856.9	2,898.8	2,876.2	9.5	7.7	-169.94	36.7	312.8	133.8	123.4	10.42	12.840	
3,000.0	2,954.6	2,998.6	2,974.9	9.9	8.0	-169.99	38.4	327.5	140.5	129.7	10.79	13.015	
3,100.0	3,052.3	3,098.4	3,073.6	10.3	8.3	-170.02	40.1	342.3	147.1	135.9	11.16	13.177	
3,200.0	3,150.0	3,198.2	3,172.2	10.8	8.6	-170.06	41.8	357.0	153.7	142.2	11.53	13.330	
3,300.0	3,247.7	3,297.9	3,270.9	11.2	8.9	-170.09	43.5	371.8	160.3	148.4	11.90	13.473	
3,400.0	3,345.4	3,397.7	3,369.6	11.6	9.2	-170.12	45.1	386.5	166.9	154.7	12.27	13.607	
3,500.0	3,443.1	3,497.5	3,468.2	12.0	9.6	-170.15	46.8	401.3	173.6	160.9	12.64	13.733	
3,600.0	3,540.9	3,597.3	3,566.9	12.4	9.9	-170.17	48.5	416.1	180.2	167.2	13.01	13.852	
3,700.0	3,638.6	3,697.1	3,665.6	12.8	10.2	-170.19	50.2	430.8	186.8	173.4	13.38	13.965	
3,800.0	3,736.3	3,796.8	3,764.2	13.3	10.5	-170.21	51.9	445.6	193.4	179.7	13.75	14.071	
3,900.0	3,834.0	3,896.6	3,862.9	13.7	10.8	-170.23	53.6	460.3	200.1	186.0	14.12	14.172	
4,000.0	3,931.7	3,996.4	3,961.6	14.1	11.1	-170.25	55.3	475.1	206.7	192.2	14.49	14.268	
4,100.0	4,029.4	4,096.2	4,060.2	14.5	11.4	-170.27	56.9	489.8	213.3	198.5	14.86	14.359	
4,200.0	4,127.1	4,196.0	4,158.9	14.9	11.8	-170.29	58.6	504.6	219.9	204.7	15.23	14.445	
4,300.0	4,224.8	4,295.7	4,257.6	15.3	12.1	-170.30	60.3	519.4	226.6	211.0	15.60	14.528	
4,400.0	4,322.5	4,395.5	4,356.2	15.8	12.4	-170.32	62.0	534.1	233.2	217.2	15.97	14.606	
4,500.0	4,420.2	4,495.3	4,454.9	16.2	12.7	-170.33	63.7	548.9	239.8	223.5	16.34	14.681	
4,600.0	4,517.9	4,595.1	4,553.6	16.6	13.0	-170.35	65.4	563.6	246.4	229.7	16.71	14.753	
4,700.0	4,615.6	4,694.9	4,652.3	17.0	13.3	-170.36	67.1	578.4	253.1	236.0	17.07	14.821	
4,800.0	4,713.4	4,794.6	4,750.9	17.4	13.6	-170.37	68.8	593.1	259.7	242.3	17.44	14.887	
4,900.0	4,811.1	4,894.4	4,849.6	17.8	14.0	-170.38	70.4	607.9	266.3	248.5	17.81	14.950	
5,000.0	4,908.8	4,994.2	4,948.3	18.3	14.3	-170.39	72.1	622.6	272.9	254.8	18.18	15.010	
5,100.0	5,006.5	5,094.0	5,046.9	18.7	14.6	-170.40	73.8	637.4	279.6	261.0	18.55	15.068	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Edith Ann-Duckworth 4H-21H-O268
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 4952.0ft (Original Well Elev)
Reference Site:	S21-T2N-R68W (Edith Ann-Duckworth)	**MD Reference:**	WELL @ 4952.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Edith Ann-Duckworth 4H-21H-O268	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Hz	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S21-T2N-R68W (Edith Ann-Duckworth) - Edith Ann-Duckworth 4G-21H-O268 - Hz - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-Geolink MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
5,200.0	5,104.2	5,193.8	5,145.6	19.1	14.9	-170.41	75.5	652.2	286.2	267.3	18.92	15.124	
5,300.0	5,201.9	5,293.5	5,244.3	19.5	15.2	-170.42	77.2	666.9	292.8	273.5	19.29	15.177	
5,400.0	5,299.6	5,393.3	5,342.9	19.9	15.5	-170.43	78.9	681.7	299.4	279.8	19.66	15.229	
5,500.0	5,397.3	5,493.1	5,441.6	20.3	15.8	-170.44	80.6	696.4	306.1	286.0	20.03	15.278	
5,600.0	5,495.0	5,592.9	5,540.3	20.8	16.1	-170.45	82.2	711.2	312.7	292.3	20.40	15.326	
5,700.0	5,592.7	5,692.7	5,638.9	21.2	16.5	-170.45	83.9	725.9	319.3	298.5	20.77	15.372	
5,800.0	5,690.4	5,792.4	5,737.6	21.6	16.8	-170.46	85.6	740.7	325.9	304.8	21.14	15.417	
5,900.0	5,788.1	5,892.2	5,836.3	22.0	17.1	-170.47	87.3	755.5	332.6	311.1	21.51	15.460	
6,000.0	5,885.9	5,992.0	5,934.9	22.4	17.4	-170.48	89.0	770.2	339.2	317.3	21.88	15.501	
6,100.0	5,983.6	6,091.8	6,033.6	22.8	17.7	-170.48	90.7	785.0	345.8	323.6	22.25	15.541	
6,200.0	6,081.3	6,191.6	6,132.3	23.3	18.0	-170.49	92.4	799.7	352.4	329.8	22.62	15.580	
6,300.0	6,179.0	6,291.3	6,231.0	23.7	18.3	-170.49	94.1	814.5	359.1	336.1	22.99	15.618	
6,400.0	6,276.7	6,391.1	6,329.6	24.1	18.7	-170.50	95.7	829.2	365.7	342.3	23.36	15.654	
6,500.0	6,374.4	6,490.9	6,428.3	24.5	19.0	-170.51	97.4	844.0	372.3	348.6	23.73	15.689	
6,600.0	6,472.1	6,590.7	6,527.0	24.9	19.3	-170.51	99.1	858.7	378.9	354.8	24.10	15.723	
6,700.0	6,569.8	6,690.5	6,625.6	25.4	19.6	-170.52	100.8	873.5	385.6	361.1	24.47	15.757	
6,800.0	6,667.5	6,790.2	6,724.3	25.8	19.9	-170.52	102.5	888.3	392.2	367.4	24.84	15.789	
6,900.0	6,765.2	6,886.8	6,819.7	26.2	20.2	-170.38	105.1	902.5	399.0	373.7	25.25	15.802	
7,000.0	6,862.9	6,975.9	6,906.8	26.6	20.5	-168.68	118.8	915.4	407.7	381.6	26.08	15.633	
7,100.0	6,960.7	7,059.3	6,985.4	27.0	20.8	-165.49	143.8	926.9	420.1	392.6	27.48	15.286	
7,200.0	7,058.3	7,135.0	7,053.0	27.4	21.1	-138.52	176.3	936.6	437.4	407.7	29.72	14.718	
7,300.0	7,154.3	7,207.5	7,113.3	27.9	21.4	-106.11	215.6	945.1	456.5	424.2	32.30	14.133	
7,400.0	7,245.8	7,277.9	7,166.7	28.3	21.8	-89.39	260.8	952.6	475.4	441.0	34.39	13.824	
7,500.0	7,330.0	7,350.0	7,215.3	28.7	22.2	-79.54	313.6	959.2	492.7	457.0	35.72	13.793	
10,300.0	7,566.0	9,947.4	7,344.0	59.3	56.2	-63.63	2,880.7	947.1	499.9	404.0	95.84	5.216	
10,400.0	7,566.0	10,047.4	7,344.0	60.8	57.8	-63.56	2,980.7	945.9	498.6	399.8	98.85	5.044	
10,500.0	7,566.0	10,147.4	7,344.0	62.4	59.4	-63.49	3,080.7	944.7	497.4	395.5	101.86	4.883	
10,600.0	7,566.0	10,247.4	7,344.0	63.9	61.1	-63.42	3,180.7	943.5	496.1	391.2	104.87	4.731	
10,700.0	7,566.0	10,347.4	7,344.0	65.5	62.7	-63.34	3,280.7	942.2	494.9	387.0	107.89	4.587	
10,800.0	7,566.0	10,447.3	7,344.0	67.1	64.4	-63.27	3,380.6	941.0	493.6	382.7	110.90	4.451	
10,900.0	7,566.0	10,547.3	7,344.0	68.7	66.0	-63.20	3,480.6	939.8	492.4	378.5	113.91	4.323	
11,000.0	7,566.0	10,647.3	7,344.0	70.3	67.7	-63.12	3,580.6	938.6	491.1	374.2	116.92	4.201	
11,100.0	7,566.0	10,747.3	7,344.0	71.9	69.4	-63.05	3,680.6	937.4	489.9	370.0	119.92	4.085	
11,200.0	7,566.0	10,847.3	7,344.0	73.5	71.0	-62.98	3,780.6	936.1	488.6	365.7	122.93	3.975	
11,300.0	7,566.0	10,947.3	7,344.0	75.1	72.7	-62.90	3,880.6	934.9	487.4	361.5	125.93	3.870	
11,400.0	7,566.0	11,047.3	7,344.0	76.7	74.4	-62.83	3,980.5	933.7	486.1	357.2	128.94	3.770	
11,500.0	7,566.0	11,147.3	7,344.0	78.3	76.1	-62.75	4,080.5	932.5	484.9	353.0	131.93	3.675	
11,600.0	7,566.0	11,247.3	7,344.0	80.0	77.8	-62.68	4,180.5	931.2	483.7	348.7	134.93	3.585	
11,700.0	7,566.0	11,347.3	7,344.0	81.6	79.5	-62.60	4,280.5	930.0	482.4	344.5	137.92	3.498	
11,800.0	7,566.0	11,447.3	7,344.0	83.2	81.1	-62.52	4,380.5	928.8	481.2	340.3	140.91	3.415	
11,900.0	7,566.0	11,547.2	7,344.0	84.9	82.8	-62.45	4,480.5	927.6	479.9	336.0	143.90	3.335	
12,000.0	7,566.0	11,647.2	7,344.0	86.5	84.5	-62.37	4,580.4	926.4	478.7	331.8	146.88	3.259	
12,100.0	7,566.0	11,747.2	7,344.0	88.2	86.2	-62.29	4,680.4	925.1	477.5	327.6	149.86	3.186	
12,200.0	7,566.0	11,847.2	7,344.0	89.9	87.9	-62.21	4,780.4	923.9	476.2	323.4	152.84	3.116	
12,300.0	7,566.0	11,947.2	7,344.0	91.5	89.6	-62.13	4,880.4	922.7	475.0	319.2	155.81	3.049	
12,400.0	7,566.0	12,047.2	7,344.0	93.2	91.3	-62.06	4,980.4	921.5	473.8	315.0	158.78	2.984	
12,500.0	7,566.0	12,147.2	7,344.0	94.9	93.0	-61.98	5,080.4	920.3	472.5	310.8	161.74	2.922	
12,600.0	7,566.0	12,247.2	7,344.0	96.5	94.8	-61.90	5,180.3	919.0	471.3	306.6	164.70	2.862	
12,700.0	7,566.0	12,347.2	7,344.0	98.2	96.5	-61.82	5,280.3	917.8	470.1	302.4	167.66	2.804	
12,800.0	7,566.0	12,447.2	7,344.0	99.9	98.2	-61.74	5,380.3	916.6	468.8	298.2	170.61	2.748	
12,900.0	7,566.0	12,547.1	7,344.0	101.6	99.9	-61.65	5,480.3	915.4	467.6	294.1	173.55	2.694	
13,000.0	7,566.0	12,647.1	7,344.0	103.2	101.6	-61.57	5,580.3	914.1	466.4	289.9	176.49	2.643	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Edith Ann-Duckworth 4H-21H-O268
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 4952.0ft (Original Well Elev)
Reference Site:	S21-T2N-R68W (Edith Ann-Duckworth)	**MD Reference:**	WELL @ 4952.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Edith Ann-Duckworth 4H-21H-O268	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Hz	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S21-T2N-R68W (Edith Ann-Duckworth) - Edith Ann-Duckworth 4G-21H-O268 - Hz - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-Geolink MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
13,100.0	7,566.0	12,747.1	7,344.0	104.9	103.3	-61.49	5,680.3	912.9	465.2	285.7	179.43	2.592	
13,200.0	7,566.0	12,847.1	7,344.0	106.6	105.0	-61.41	5,780.2	911.7	463.9	281.6	182.36	2.544	
13,300.0	7,566.0	12,947.1	7,344.0	108.3	106.8	-61.33	5,880.2	910.5	462.7	277.4	185.29	2.497	
13,400.0	7,566.0	13,047.1	7,344.0	110.0	108.5	-61.24	5,980.2	909.3	461.5	273.3	188.21	2.452	
13,500.0	7,566.0	13,147.1	7,344.0	111.7	110.2	-61.16	6,080.2	908.0	460.3	269.1	191.12	2.408	
13,600.0	7,566.0	13,247.1	7,344.0	113.4	111.9	-61.08	6,180.2	906.8	459.0	265.0	194.03	2.366	
13,700.0	7,566.0	13,347.1	7,344.0	115.1	113.6	-60.99	6,280.1	905.6	457.8	260.9	196.94	2.325	
13,800.0	7,566.0	13,447.1	7,344.0	116.8	115.4	-60.91	6,380.1	904.4	456.6	256.8	199.84	2.285	
13,900.0	7,566.0	13,547.0	7,344.0	118.5	117.1	-60.82	6,480.1	903.2	455.4	252.6	202.73	2.246	
14,000.0	7,566.0	13,647.0	7,344.0	120.2	118.8	-60.73	6,580.1	901.9	454.2	248.5	205.62	2.209	
14,100.0	7,566.0	13,747.0	7,344.0	121.9	120.5	-60.65	6,680.1	900.7	452.9	244.4	208.50	2.172	
14,200.0	7,566.0	13,847.0	7,344.0	123.6	122.3	-60.56	6,780.1	899.5	451.7	240.3	211.37	2.137	
14,300.0	7,566.0	13,947.0	7,344.0	125.3	124.0	-60.47	6,880.0	898.3	450.5	236.3	214.24	2.103	
14,400.0	7,566.0	14,047.0	7,344.0	127.0	125.7	-60.39	6,980.0	897.0	449.3	232.2	217.11	2.069	
14,500.0	7,566.0	14,147.0	7,344.0	128.7	127.4	-60.30	7,080.0	895.8	448.1	228.1	219.96	2.037	
14,600.0	7,566.0	14,247.0	7,344.0	130.4	129.2	-60.21	7,180.0	894.6	446.9	224.0	222.81	2.006	
14,700.0	7,566.0	14,347.0	7,344.0	132.1	130.9	-60.12	7,280.0	893.4	445.7	220.0	225.66	1.975	
14,800.0	7,566.0	14,447.0	7,344.0	133.8	132.6	-60.03	7,380.0	892.2	444.4	215.9	228.49	1.945	
14,900.0	7,566.0	14,546.9	7,344.0	135.6	134.4	-59.94	7,479.9	890.9	443.2	211.9	231.33	1.916	
15,000.0	7,566.0	14,646.9	7,344.0	137.3	136.1	-59.85	7,579.9	889.7	442.0	207.9	234.15	1.888	
15,100.0	7,566.0	14,746.9	7,344.0	139.0	137.8	-59.76	7,679.9	888.5	440.8	203.8	236.97	1.860	
15,200.0	7,566.0	14,846.9	7,344.0	140.7	139.6	-59.67	7,779.9	887.3	439.6	199.8	239.78	1.833	
15,300.0	7,566.0	14,946.9	7,344.0	142.4	141.3	-59.57	7,879.9	886.0	438.4	195.8	242.58	1.807	
15,400.0	7,566.0	15,046.9	7,344.0	144.1	143.0	-59.48	7,979.9	884.8	437.2	191.8	245.38	1.782	
15,500.0	7,566.0	15,146.9	7,344.0	145.9	144.8	-59.39	8,079.8	883.6	436.0	187.8	248.17	1.757	
15,600.0	7,566.0	15,246.9	7,344.0	147.6	146.5	-59.30	8,179.8	882.4	434.8	183.9	250.95	1.733	
15,700.0	7,566.0	15,346.9	7,344.0	149.3	148.2	-59.20	8,279.8	881.2	433.6	179.9	253.72	1.709	
15,800.0	7,566.0	15,446.9	7,344.0	151.0	150.0	-59.11	8,379.8	879.9	432.4	175.9	256.49	1.686	
15,900.0	7,566.0	15,546.9	7,344.0	152.7	151.7	-59.01	8,479.8	878.7	431.2	172.0	259.25	1.663	
16,000.0	7,566.0	15,646.8	7,344.0	154.5	153.4	-58.92	8,579.8	877.5	430.0	168.0	262.00	1.641	
16,100.0	7,566.0	15,746.8	7,344.0	156.2	155.2	-58.82	8,679.7	876.3	428.8	164.1	264.74	1.620	
16,200.0	7,566.0	15,846.8	7,344.0	157.9	156.9	-58.72	8,779.7	875.1	427.6	160.1	267.48	1.599	
16,300.0	7,566.0	15,946.8	7,344.0	159.6	158.7	-58.62	8,879.7	873.8	426.4	156.2	270.20	1.578	
16,400.0	7,566.0	16,046.8	7,344.0	161.4	160.4	-58.53	8,979.7	872.6	425.2	152.3	272.92	1.558	
16,500.0	7,566.0	16,146.8	7,344.0	163.1	162.1	-58.43	9,079.7	871.4	424.0	148.4	275.63	1.538	
16,600.0	7,566.0	16,246.8	7,344.0	164.8	163.9	-58.33	9,179.6	870.2	422.9	144.5	278.34	1.519	
16,700.0	7,566.0	16,346.8	7,344.0	166.6	165.6	-58.23	9,279.6	868.9	421.7	140.6	281.03	1.500	
16,800.0	7,566.0	16,446.8	7,344.0	168.3	167.4	-58.13	9,379.6	867.7	420.5	136.8	283.71	1.482	Level 3
16,900.0	7,566.0	16,546.8	7,344.0	170.0	169.1	-58.03	9,479.6	866.5	419.3	132.9	286.39	1.464	Level 3
17,000.0	7,566.0	16,646.7	7,344.0	171.7	170.8	-57.93	9,579.6	865.3	418.1	129.1	289.06	1.446	Level 3
17,100.0	7,566.0	16,746.7	7,344.0	173.5	172.6	-57.83	9,679.6	864.1	416.9	125.2	291.72	1.429	Level 3
17,200.0	7,566.0	16,846.7	7,344.0	175.2	174.3	-57.72	9,779.5	862.8	415.7	121.4	294.37	1.412	Level 3
17,300.0	7,566.0	16,946.7	7,344.0	176.9	176.1	-57.62	9,879.5	861.6	414.6	117.6	297.01	1.396	Level 3
17,346.6	7,566.0	16,993.3	7,344.0	177.7	176.9	-57.57	9,926.1	861.0	414.0	115.8	298.23	1.388	Level 3, SF

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Edith Ann-Duckworth 4H-21H-O268
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 4952.0ft (Original Well Elev)
Reference Site:	S21-T2N-R68W (Edith Ann-Duckworth)	**MD Reference:**	WELL @ 4952.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Edith Ann-Duckworth 4H-21H-O268	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Hz	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S21-T2N-R68W (Edith Ann-Duckworth) - JILLSON A 3 (EXISTING) - FOUNDATION WELL - NO SURVE

Offset Site Error: 0.0 ft

Survey Program: 5009-Geolink MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
2,300.0	2,270.6	2,243.6	2,243.6	7.0	3.9	-47.67	382.6	632.0	485.6	475.9	9.74	49.872	
2,400.0	2,368.3	2,341.3	2,341.3	7.4	4.1	-49.56	382.6	632.0	471.3	461.0	10.33	45.611	
2,500.0	2,466.1	2,439.1	2,439.1	7.9	4.3	-51.56	382.6	632.0	457.6	446.7	10.95	41.796	
2,600.0	2,563.8	2,536.8	2,536.8	8.3	4.4	-53.68	382.6	632.0	444.5	432.9	11.58	38.380	
2,700.0	2,661.5	2,634.5	2,634.5	8.7	4.6	-55.92	382.6	632.0	432.1	419.8	12.23	35.320	
2,800.0	2,759.2	2,732.2	2,732.2	9.1	4.8	-58.28	382.6	632.0	420.3	407.4	12.90	32.584	
2,900.0	2,856.9	2,829.9	2,829.9	9.5	4.9	-60.77	382.6	632.0	409.3	395.7	13.58	30.142	
3,000.0	2,954.6	2,927.6	2,927.6	9.9	5.1	-63.39	382.6	632.0	399.2	384.9	14.27	27.967	
3,100.0	3,052.3	3,025.3	3,025.3	10.3	5.3	-66.13	382.6	632.0	389.9	375.0	14.97	26.039	
3,200.0	3,150.0	3,123.0	3,123.0	10.8	5.5	-69.00	382.6	632.0	381.6	366.0	15.68	24.338	
3,300.0	3,247.7	3,220.7	3,220.7	11.2	5.6	-71.98	382.6	632.0	374.4	358.0	16.39	22.846	
3,400.0	3,345.4	3,318.4	3,318.4	11.6	5.8	-75.06	382.6	632.0	368.2	351.1	17.09	21.547	
3,500.0	3,443.1	3,416.1	3,416.1	12.0	6.0	-78.24	382.6	632.0	363.2	345.4	17.78	20.428	
3,600.0	3,540.9	3,513.9	3,513.9	12.4	6.1	-81.49	382.6	632.0	359.4	340.9	18.45	19.475	
3,700.0	3,638.6	3,611.6	3,611.6	12.8	6.3	-84.79	382.6	632.0	356.7	337.6	19.10	18.676	
3,800.0	3,736.3	3,709.3	3,709.3	13.3	6.5	-88.13	382.6	632.0	355.4	335.7	19.72	18.019	
3,855.7	3,790.7	3,763.7	3,763.7	13.5	6.6	-90.00	382.6	632.0	355.2	335.2	20.06	17.711	CC
3,900.0	3,834.0	3,807.0	3,807.0	13.7	6.6	-91.49	382.6	632.0	355.3	335.0	20.31	17.493	ES
4,000.0	3,931.7	3,904.7	3,904.7	14.1	6.8	-94.83	382.6	632.0	356.5	335.7	20.86	17.088	
4,100.0	4,029.4	4,002.4	4,002.4	14.5	7.0	-98.14	382.6	632.0	359.0	337.6	21.38	16.793	
4,200.0	4,127.1	4,100.1	4,100.1	14.9	7.2	-101.40	382.6	632.0	362.7	340.8	21.85	16.599	
4,300.0	4,224.8	4,197.8	4,197.8	15.3	7.3	-104.58	382.6	632.0	367.6	345.3	22.28	16.496	
4,400.0	4,322.5	4,295.5	4,295.5	15.8	7.5	-107.68	382.6	632.0	373.6	350.9	22.68	16.476	SF
4,500.0	4,420.2	4,393.2	4,393.2	16.2	7.7	-110.67	382.6	632.0	380.8	357.7	23.03	16.530	
4,600.0	4,517.9	4,490.9	4,490.9	16.6	7.8	-113.55	382.6	632.0	388.9	365.6	23.36	16.650	
4,700.0	4,615.6	4,588.6	4,588.6	17.0	8.0	-116.31	382.6	632.0	398.1	374.4	23.66	16.829	
4,800.0	4,713.4	4,686.4	4,686.4	17.4	8.2	-118.94	382.6	632.0	408.1	384.2	23.93	17.059	
4,900.0	4,811.1	4,784.1	4,784.1	17.8	8.3	-121.44	382.6	632.0	419.0	394.8	24.17	17.334	
5,000.0	4,908.8	4,881.8	4,881.8	18.3	8.5	-123.82	382.6	632.0	430.7	406.3	24.40	17.649	
5,100.0	5,006.5	4,979.5	4,979.5	18.7	8.7	-126.07	382.6	632.0	443.1	418.5	24.62	17.997	
5,200.0	5,104.2	5,009.0	5,009.0	19.1	8.7	-126.73	382.6	632.0	461.2	436.3	24.93	18.501	
5,300.0	5,201.9	5,009.0	5,009.0	19.5	8.7	-126.73	382.6	632.0	498.2	472.9	25.28	19.709	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Edith Ann-Duckworth 4H-21H-O268
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 4952.0ft (Original Well Elev)
Reference Site:	S21-T2N-R68W (Edith Ann-Duckworth)	**MD Reference:**	WELL @ 4952.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Edith Ann-Duckworth 4H-21H-O268	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Hz	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S21-T2N-R68W (Edith Ann-Duckworth) - KENNEDY 8-0-21 (EXISTING) - ENCANA WELL - SURVEYS

Offset Site Error: 0.0 ft

Survey Program: 45-Geolink MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
12,000.0	7,566.0	7,944.7	7,504.3	86.5	40.8	-85.11	5,011.7	1,245.6	438.9	340.0	98.81	4.441	
12,100.0	7,566.0	7,947.1	7,506.7	88.2	40.8	-86.57	5,011.8	1,245.7	341.8	241.1	100.77	3.392	
12,200.0	7,566.0	7,949.5	7,509.1	89.9	40.8	-88.03	5,011.8	1,245.7	247.2	144.5	102.68	2.407	
12,300.0	7,566.0	7,951.8	7,511.4	91.5	40.8	-89.47	5,011.9	1,245.8	159.2	54.7	104.52	1.523	
12,400.0	7,566.0	7,954.2	7,513.8	93.2	40.8	-90.91	5,011.9	1,245.8	97.8	-8.5	106.31	0.920	Level 1
12,428.9	7,566.0	7,954.9	7,514.5	93.7	40.8	-91.33	5,012.0	1,245.8	93.4	-13.4	106.82	0.875	Level 1, CC, ES, SF
12,500.0	7,566.0	7,956.5	7,516.1	94.9	40.8	-92.34	5,012.0	1,245.9	117.4	9.3	108.04	1.087	Level 2
12,600.0	7,566.0	7,958.8	7,518.4	96.5	40.8	-93.76	5,012.0	1,245.9	194.9	85.2	109.70	1.777	
12,700.0	7,566.0	7,961.1	7,520.7	98.2	40.8	-95.17	5,012.1	1,246.0	286.7	175.4	111.29	2.576	
12,800.0	7,566.0	7,963.4	7,523.0	99.9	40.8	-96.55	5,012.2	1,246.0	382.6	269.7	112.82	3.391	
12,900.0	7,566.0	7,965.7	7,525.3	101.6	40.8	-97.93	5,012.2	1,246.1	480.1	365.8	114.28	4.201	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Edith Ann-Duckworth 4H-21H-O268
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 4952.0ft (Original Well Elev)
Reference Site:	S21-T2N-R68W (Edith Ann-Duckworth)	**MD Reference:**	WELL @ 4952.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Edith Ann-Duckworth 4H-21H-O268	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Hz	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S21-T2N-R68W (Edith Ann-Duckworth) - KENNEDY 8-4-21 (EXISTING) - ENCANA WELL - SURVEYS

Offset Site Error: 0.0 ft

Survey Program: 72-Geolink MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
9,300.0	7,566.0	7,715.0	7,510.3	44.9	28.3	-88.71	2,307.9	1,174.5	488.2	427.1	61.14	7.986	
9,400.0	7,566.0	7,716.2	7,511.5	46.2	28.3	-89.00	2,307.9	1,174.5	403.5	340.7	62.80	6.426	
9,500.0	7,566.0	7,717.4	7,512.7	47.6	28.3	-89.30	2,307.9	1,174.5	327.6	263.1	64.47	5.082	
9,600.0	7,566.0	7,718.6	7,514.0	49.0	28.3	-89.60	2,307.9	1,174.5	267.9	201.8	66.14	4.051	
9,700.0	7,566.0	7,719.9	7,515.2	50.4	28.3	-89.90	2,307.9	1,174.5	237.2	169.4	67.82	3.497	
9,727.7	7,566.0	7,720.2	7,515.5	50.8	28.3	-89.98	2,307.9	1,174.5	235.6	167.3	68.29	3.449	CC, ES, SF
9,800.0	7,566.0	7,721.1	7,516.4	51.9	28.3	-90.20	2,307.9	1,174.5	246.4	176.9	69.51	3.545	
9,900.0	7,566.0	7,722.4	7,517.7	53.3	28.3	-90.51	2,307.9	1,174.5	291.8	220.7	71.20	4.099	
10,000.0	7,566.0	7,723.6	7,519.0	54.8	28.3	-90.82	2,308.0	1,174.5	360.0	287.2	72.89	4.940	
10,100.0	7,566.0	7,724.9	7,520.2	56.3	28.3	-91.13	2,308.0	1,174.5	440.6	366.0	74.58	5.907	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Edith Ann-Duckworth 4H-21H-O268
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 4952.0ft (Original Well Elev)
Reference Site:	S21-T2N-R68W (Edith Ann-Duckworth)	**MD Reference:**	WELL @ 4952.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Edith Ann-Duckworth 4H-21H-O268	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Hz	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to WELL @ 4952.0ft (Original Well Elev)	Coordinates are relative to: Edith Ann-Duckworth 4H-21H-O268
Offset Depths are relative to Offset Datum	Coordinate System is US State Plane 1983, Colorado Northern Zone
Central Meridian is -105.500000 °	Grid Convergence at Surface is: 0.32°